University News

MONDAY, DECEMBER 19, 1988 Rs. 2.50

Shri S.L. Kirloskar, a leading industrialist, delivering the Convocation Address at the SNDT Women's University, Bombay Seated on his left are Smt. K.H. Bhansali, Vice-Chancellor and Shri Brahmanand Reddy, Governor of Maharashtra.

RAYAT SHIKSHAN SANSTHA
SATARA (MAHARASHTRA)

WANTED

Applications in the prescribed forms are invited for the post of a 'PRINCIPAL' for the College conducted by Rayat Shikshan Sanstha.

Minimum Qualifications : (1) Consistently good academic record with at least second class (C in the seven point scale) Master's degree in relevant subject in Arts, Science, Commerce faculty from an Indian University or equivalent degree from a foreign University.

AND

(2) M.Phil degree or recognised degree beyond the Master's level or published work indicating the capacity of a candidate for independent research work.

Experience : At least 12 years experience as a College teacher approved by the University.

Pay Scale : Rs. 1200-50-1300-60-1900.

Candidate of the Backward Class community will be given preference. Initially the person selected shall be appointed on no-grant College in Shivaji University area, however, he will be transferable to any College of the Sanstha.

For the form of application, please apply by sending a self addressed envelope of 25 cms x 10 cms size and a crossed postal order of Rs. 15/- drawn in favour of Secretary, Rayat Shikshan Sanstha, Satara.

Applications should reach the undersigned on or before **10th January, 1989**.

SECRETARY

Rayat Shikshan Sanstha, Satara

(MAHARASHTRA).

UNIVERSITY NEWS

VOL. XXVI DECEMBER 19
No. 51 1988
Price Rs. 2.50

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

IN THIS ISSUE

University Autonomy and Accountability
Making the System Work 7

Convocation

SNDT Women's University, Bombay

News from Universities

University Administration 17
Workshop on Examination Reforms at Bharathidasan Varsity 18
West Bengal Varsities to seek Corporate Financing 19
Education Data Computerised in Andhra Pradesh 19
Indian Council of Chemists meets at Tirupati 20
IGNOU to Introduce New Courses 20
Research in Progress 21
Theses of the Month 23
Classified Advertisements 24

Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :
SUTINDER SINGH

University Autonomy and Accountability

Anand Sarup*

The very fact that the Association of Indian Universities has set up a Committee to look into various issues pertaining to autonomy and accountability indicates that, while a general acceptance of the ideas of autonomy and accountability exists, these concepts have not been defined in detail.

Looking far back into the history of civilisation, one realises that the autonomy of "Educational" institutions was derived essentially from the religious character of education, imparted primarily to ensure that knowledge about Gods and Goddess and ritualistic practices to propitiate them remained unaltered. Everybody wanted this to be passed on from one generation to another, by designated social functionaries, without any "distortion". It was found that any departure from hallowed practices might evoke the anger of celestials who were ferociously concerned about everything being done exactly as ordained and were likely to devastate whole generations and countries because of one little mistake or aberration. This belief naturally ensured complete autonomy for the prevailing "educational" system which was superseded only when another group, with its own gods and spirits, conquered that society.

Thus, for centuries, education as a religious function remained insulated, except in the case of conquest by other communities with a different faith from secular intervention, which started intervening after the wheel was invented, particularly following the discovery of gun powder. These and other technological developments destroyed the insularity of closed societies and later, the industrial revolution exerted tremendous pressure for expanding the content and role of formal and informal education. The forces unleashed by the industrial revolution, resulted in progressive dismantling of the feudal order, in which, within its own niche, a certain kind of classical highly structured "education" had continued to be imparted under the watchful eyes of churches which monitored and dealt exemplary punishment to original thinkers and non-conforming institutions

For several centuries now education has largely been the handmaid of the state, generally propagating the philosophy of the rulers. However, after the advent of liberalism and rationalism which later adopted a pluralistic approach to societal processes, educational systems have tended to change with the times. However, this change, particularly in hoary institutions, has been at a pace considerably slower than the requirements of socio-economic, cultural and political development. That is why, over the last one hundred years, a large number of new educational institutions came to be established all over the world with objectives and systems more in tune with the times. The emergence of these institutions has forced the older institutions also to recognise the inevitability of change and forced them to subordinate their "autonomous" will to the writing on the wall During the last 10 years, the entire

---

[Paper presented at the 63rd Annual Meeting of AIU held on December 5-7, 1988].

**Chairman, National Book Trust, New Delhi* educational system in the United Kingdom has been in a state of turmoil largely because the Parliament and the industry have been putting pressure on educational institutions to introduce basic changes not only in the content of education but also in their organisational structure and their style of management.

In the case of the United States. educational institutions enjoy a very precarious kind of autonomy. This is largely because, except for state universities which in any case are rated as second rate institutions essentially because of their ponderous inflexibility, front-line universities, etc are quick to adopt changes which would enable them to respond to new socio-economic challenges, chiefly because they derive most of their funds from industry and private foundations set up by entrepreneurs. This process of fund-raising curtails the functional autonomy of these institutions and, in certain cases, forces them even to adapt or subordinate their ongoing programmes in favour of well-endowed multi-disciplinary tasks, which often require them to work within the discipline of an external agency laying down the policy, the plan and the system of coordination and monitoring within a multi-institutional network. This involves a great many compromises with institutional "autonomy" which seems to be acceptable to the most prestigious institutions.

The achievements of the socialistic countries in the field of education are, on the whole, so impressive that their style of planning and functioning also needs to be considered in the context of the debate on "autonomy" and "accountability." In this connection, it would be adequate to state that whatever "autonomy" is enjoyed by academic institution is not because of some "divine" right but because of the anxiety of the state to encourage the continuance of processes which are perceived as contributory to the social goals adopted by the state.

One of the points that emerges from the observations in the preceding paragraphs is that "autonomy" of academic institutions cannot be regarded as an eternal, immutable and unchallengeable concept, to be protected like a holy cow, irrespective of whatever may be happening in the institutions. It has necessarily to be seen in the light of performance, against the framework of social context, political enviornment, economic imperatives and technological challenges. There is a strong belief that in the long run, universities and other academic institutions, will fare much better if the issue of their autonomy is viewed as an organisational or managerial pre-requisite for the fulfilment of the nature of responsibilities assigned to them with regard to research, teaching and extension. However, before proceeding further along this line of reasoning, it seems necessary to reinforce the case for autonomy for a very fundamental reason also. While, on the one hand, universities, etc. are admittedly the creations of the state, functioning within the constraints of the total system, these very institutions are required to catalyse the emergence of ideas for a new social order for the coming decades. On careful thinking it does appear that unless those segments of academic institutions which are engaged in fundamental research or evolution of futuristic thought, are insulated from the rough and tumble of populist pressures, these institutions will not be able to do anything worthwhile in these areas which are crucial to be very survival of the socio-cultural systems. If academic institutions remain bogged down only with the ephemeral issues of the day, they will not be able to prepare people passing through their portals for the battles of tomorrow, which, we know by now, will be qualitatively different from the challenges of yesterday and today While conceding that the issue of "autonomy" assumes a somewhat different charter when viewed in the context and also admitting that this question has generally not been brought up in this context, one must emphasise that the case for autonomy of academic institutions should rest largely upon whether or not an institution is engaged in this kind of work. Otherwise the term "autonomy" should be used only to denote "functional freedom" in a strictly managerial sense.

II

Having concluded that it would be realistic to look at "autonomy" in terms of a managerial concept of "functional freedom", it seems essential to remove a misunderstanding which, very often, jeopardises rational discussion on this issue Autonomy of Universities, etc. does not mean the autonomy of Vice-Chancellors As of today, Vice-Chancellors, are required to function, not as ordinary mortals heading Universities, but as extraordinary people who can cope with administrative, academic, moral and political problems, of any magnitude, on their own. On the other hand, the way Vice-Chancellors get sacked, the manner in which some of them manouver to get themselves appointed and the number who spend their tenure away from the campuses, under police protection, behind barbed wire, proves that we must stop being unrealistic in our expectations from them. It would be fair not only to the university system but also to the Vice-Chancellors themselves if we recognise that they are, despite their stature and academic excellence, capable of doing only so much and no more. In these democratic times, people do not normally grow into supermen and those who start believing that they are much taller than others, usually fall flat on their faces.

Gone are the days when Vice-Chancellors were expected to call only upon the Government and Chief Ministers. Ordinary Ministers dared not send for them. Mere secretaries to government did not keep them waiting in their anterooms and they too did not go from clerk to clerk to get their grants released or their sanctioned posts unfrozen. Politics was always a feature of university life but it was not the politics of the gutter. In any case, the *process of decision-making* had not become so complex with so many bodies comprising elected members, so many trade unions, rotation of incumbents at the levels of Heads of Departments and Deans and the Courts declaring universities as industrial establishments Moreover, university education had not got devalued because of large scale unemployment among graduates and post-graduates. Even forty years back, people came to the universities not merely to go through the motions of studying for want of anything better. They then came in pursuit of education with the confidence that if they graduated, they would get a respectable job

Today, there is a great confusion between roles and responsibilities. Vice-Chancellors are the only ones held responsible for whatever goes wrong and, therefore, they are the ones who get sacked even though so many other individuals and bodies have, through assignment of various roles, acquired the power to take or to indefinitely stall a decision. It is, therefore, necessary to identify all those who, besides the Vice-Chancellors, directly or indirectly exercise real power in the universities, and having done this, to devise mechanisms to see that wherever they go wrong, their, and *not the Vice-Chancellors, heads will roll.*

Since this aspect of university administration is not the main focus of this paper, the questions relevant to it will have to be examined separately. Nonetheless, it is necessary to end this section by adding a footnote to the earlier proposition, that university autonomy, by stating that instead of trying to carry on with a present structure, with the power and responsibility concentrated in the Vice-Chancellor, it would be better to restructure the system and redefine the roles and responsibilities of all the dramatis-personae playing their parts in the university. In addition, it is also necessary to determine, after due examination, as to whether it is at all possible to run universities, etc. in a credible fashion, within the financial, administrative and political constraints imposed from outside.

III

Autonomy and accountability, which are the subject of this paper, are really two sides of the same coin. Any complex task of a continuing nature which involves the participation of different people at different places, requires the assignments of responsibilities, i e. the determination of who will do what, where, when, etc and also the freedom to take the initiative to proceed with these within the overall framework of given objectives and constraints. Large *industrial or commercial undertakings*, multi-nationals and other enterprises in respect of which every step or situation cannot be predicted allow their regional boards and managers considerable freedom of action. Generally the degrees of interference from the higher authorities in the functioning of a lower formation is determined by the latter's record of performance. However, the view in private industry is that if higher authorities have to intervene too often to help out a particular unit either the system or the personnel or both should be changed or the viability of objectives should be re-examined with reference to the internal and external constraints inherent in the system.

Academic institutions such as Universities are highly complex organisations which are charged with a multiplicity of responsibilities. Some of which defy precise definition. While for some of these, inputs and outputs can be defined, others require flexible and innovative approaches in the development of physical, financial and human resources. Another *complicating factor is that these institutions* have to deal with a lot of extremely sensitive and volatile people who not only tend to, but who are also required to, question everything and everyone. They do *not like the idea of being answerable to any one* because, often quite rightly, they believe that they know best as what ought to be done to obtain certain results.

While recognising the above facts, it has also to be recognized that so long as universities are playing a role in the development of human resources and are operating on the basis of allocation of public funds. They cannot be left entirely to themselves. Acceptance of public funds has to go alongwith a framework of accountability delivered from either the basic purpose for which the University was established or the objective for which funds were voted or assigned by the Parliament, the State legislature or some other public body.

Moreover, it is inconceivable that no one should ask any questions from an organization made responsible for shaping the personalities, and equipping the minds of young people who will hold the country's future in their hands in the coming decades. The stakes are too high to leave the matter entirely in the hands of the universities.

It has already been observed earlier that the degree of overseeing intervention, the issuance of directives or the details in which performance is monitored depends largely upon an institution's record of accomplishments and failure. It has also been noted that when an institution shows a persistent inability to discharge its responsibilities and required too much supervision or intervention, its objectives, organisational set, personnel policies should be reviewed so that it can be overhauled and given a mandate and a management system which will enable it to function as a viable institution. It is time to take stock of what is going on in universities and on the basis of certain performance criteria decide as to what kind of intervention is required to improve the performance of the Higher Education System in India.

IV

Following from the view that autonomy is to be looked upon as a managerial concept in the context of achieving the objectives for which the university system should be held responsible, it seems essential that the views on the accountability of this system should be examined and a generally acceptable approach to it should be crystallised. In this connection, it is necessary to establish a broad consensus on what should be regarded as the minimal requirement of accountability vis-a-vis the university system. Apparently every university has to ensure that :

(i) it will admit students as per a pre-determined schedule, only on the basis of credible and objective criteria;

(ii) it will lay down and, from time to time, update syllabi and curricula keeping in view the general levels of competence of students at the entry point and the conceptual comprehension, methodological skills, and factual information which they are expected to acquire at the end of a course;

(iii) class and course work will proceed according to a given time table;

(iv) appraisal of the levels of achievement of students vis-a-vis the pre-requisites laid down in the syllabi, etc. would be undertaken well in time through processes which would demonstrably preclude favouritism and corruption;

(v) the grading awarded to examinees would be such as to command credibility among other institutions and employees;

(vi) an environment for learning would be created which would ensure that the general body of students would become actively involved with the pursuit of knowledge so that there would be very little 'wastage and stagnation;'

(vii) the composition of the staff and of the student body and the general environment would discourage inbreeding and parochialism and encourage a humanitarian reverence for life and environment and a scientific attitude to life and the mysteries of nature, and

(viii) adherence to reasonable norms of operational efficiency, professional encouragement, financial discipline, grievance redressal.

The above norms of accountability have not been formulated with a view either to prepare a comprehensive list or arrange these in an order of inter-se importance. It is meant merely to illustrate the kind of norms of institutional accountability which need to be evolved. This listing, however, has brought into sharp focus the crux of the whole issue of accountability. To draw up an appropriate list two basic questions will need attention. Firstly, it will have to be decided as to which sections of the community vis-a-vis whom accountability should be enforced and secondly, identification of all those functionaries, who in a university system, will share the burdens of accountability.

For the purpose of this paper, it will be adequate to pass from the question of accountability to that of autonomy after answering the question as to who are entitled to participate in determining, not only the various dimensions of accountability but also deciding the process, the periodicity and the follow-up consequences of the reckoning implied in this process. Apparently the tax payers, the parents, the socio-economic planners, educationists with a vision of the future, faculty and staff, the students and perhaps some others too will have to be involved, with the perceptions and concerns of some receiving greater weightage than the others.

V

Having referred to the areas and some other issues related to accountability, it appears necessary to start looking at various those pre-requisites of functional autonomy without which one cannot expect the universities to perform the tasks assigned to them. For instance, there is no justification for talking about good education, responsible behaviour or the pursuit of excellence to people, to whom, year after year, money is not provided to pay for the salaries and other perquisites of the employees, keep the masonary and plaster in good repair, the woodwork well painted, the furniture properly varnished, the water supply system in good functional order, kitchens capable of providing edible food at reasonable prices, the electric wiring and fittings safe against overloading, tripping and short circuiting, the lawn and flowerbeds well tended, the sports clubs and gymnasia appropriately provisioned and last but not the least, the libraries and the laboratories equipped adequately to support the syllabi and curricula. Everyone knows the financial requirements for the items listed above. It should be self-evident that it is the height of irresponsibility to start new institutions or demand the enlargement of either the faculty or the student body of an existing institution without meeting these requirements.

It seems as if almost everyone controlling universities, etc. is purposely keeping them starved of the minimal funds required even for routine functions just to ensure that Vice-Chancellors will come begging to them for what is due to them by rights. Tied to indices of labour rates and prices of relevant materials, there should be norms for allocation for maintenance of different facilities. Such a formula has been introduced in a few institutions and this has contributed considerably to the self-esteem and morale of the personnel of these bodies.

It is necessary that the items which are considered integral to the functioning of the universities, etc. should be decided by a process of free and frank interaction with the concerned bodies and authorities of the universities. However, it does seem desirable that this process of demarcation may set off by specifying certain areas in which room for autonomous action seems too obvious to require elaborate justification. As long as university administrators are held responsible for the maintenance of academic standards and discipline, these bodies will have to exercise final authority to administer the institutions on the basis of regulations formulated in the matter of :

(i) determining the number and methodology of admitting candidates to various courses;

(ii) retaining or dropping students from their rolls for misconduct or poor academic performance ;

(iii) recruitment, management and sacking of teaching and other staff;

(iv) administration of examinations, and for this purpose, making appointment of examiners, invigilators, etc.

(v) moderation of results and upkeep of standards.

The items in the above list can be suitably revised by people who are knowledgeable about the functioning of the university system. But that, though necessary, will not be adequate by itself. What is crucial to the proper functioning of the universities to enable them to acquire the characteristics of truly autonomous institution, is the establishment of a consensus between ministers, legislators, chancellors, bureaucrats and others that on certain issues, pertaining to the day to day functioning of the universities, no outsider will be able to interfere. On other issues involving grievance redressal, policy formulation, diversification or expansion of facilities, etc. outside intervention would take place through procedures which have been laid down in the Regulations. This will ensure that it will be possible to identify the decision-makers from within and without the university and hold them res-

TO OUR READERS

Knowledgeable and perceptive as they are, our contributors must not necessarily be allowed to have the last word. It is for you, the readers, to join issues with them. Our columns are as much open to you as to our contributors. Your communications should, however, be brief and to the point.

ponsible for the consequences of their decisions. One of the major problems today is that a great deal of interference is by proxy. Those who have financial, administrative or political clout do *not* issue an order under their own authority. They operate an extra constitutional pressure to get what they want done by various university authorities against their will and better judgement. This results in the progressive loss of credibility of Vice-Chancellor after Vice-Chancellor as the people discover, and somehow they always discover, as to who pulls the strings from behind.

Having gone over the various issues pertaining to accountability and autonomy of universities, etc. it seems desirable to reiterate that the whole exercise will serve no purpose if the discussion of various issues continues to take place in the context of the present system which puts the Vice-Chancellors on unstable pedestals from which they keep falling like ninepins essentially because of inherent contradictions which have developed over the last few decades. *It is futile to think that the clock can be turned back and universities can be made to function satisfactorily as administrative units under the monalithic control of Vice-Chancellors. They can operate at a reasonable level of stability only if effective measures are taken immediately to evolve within these institutions functional subsystems of accountability and autonomy which would enable various functionaries not only to take their own decisions but also take the consequences of their acts of omission and commission.*

Under the inexorable compulsion of having to move from a monolithic to a pluralistic system, the culture and administrative structure of universities is going through a transitional phase. Not only Vice-Chancellors but a lot of other people are resisting this change. It is necessary that, to the extent this change appears to be inevitable, it should be accepted and those who understand the university system from inside should be pursuaded to lend their cooperation by contributing to the restructuring of the present system. *If this process of administrative restructuring keeps on getting postponed, Vice-Chancellors will continue to fall victims to changed circumstances. It is necessary, therefore, that the academic community should be mobilized to participate actively in working out the modalities of changing the present system which will introduce a much larger measure of flexibility and the much needed dispersal of autonomy and accountability.* ☐

PANJAB UNIVERSITY, CHANDIGARH
Department of Commerce & Business Management
Invites applications for admission to :
Master of Business Administration (MBA)-30 Seats
(Two Year Full-time Course) 22nd batch
COMMENCING JULY, 1989

Eligibility

A recognised Bachelor's or Post-graduate degree in any discipline Agriculture, Arts, Commerce, Engineering, Law, Science, Technology etc. with at least 50 per cent marks in the aggregate OR Chartered Accountant OR Cost and Works Accountant OR Company Secretary OR AMIE Work experience will be an additional qualification.

Note : (a) Candidates appearing in FINAL DEGREE examination in April/May, 1989 or earlier are also eligible to apply.
(b) Merit Scholarships and limited financial assistance in deserving cases available.
(c) There is reservation of seats for Scheduled Caste (15%), Scheduled Tribe (7-1/2%) and Backward Class (5%) as per University regulations with concession of 5% marks in the aggregate; provided they satisfy the selection criteria. Seats are also reserved for Physically Handicapped (3%), on the basis of achievement in sports (5%) as per University norms, Military personnel (up-to 5%) as per University norms, for son/daughter/husband/wife/brother/sister of persons killed/incapacitated in November 1981 riots and of persons killed/incapacitated in terrorist violence in Punjab and Chandigarh (2%); provided they satisfy the selection criteria.
(d) Those who have passed their last examination from a University other than Panjab University are required to submit Migration/Eligibility Certificate/s, if offered admission

Admission Test

All eligible candidates will take a written test to be held at different centres in India on Sunday, March 5, 1989.

Applications

For application forms and relevant information, write to The Deputy Registrar, Department of *Commerce and* Business Management, Panjab University, Chandigarh-160 014 enclosing therewith a crossed Indian Postal Order/Bank Draft payable at Chandigarh *for* Rs. 80/- *in favour of* Registrar, Panjab University, Chandigarh and a self-addressed envelope (29 x 18 cms) bearing Rs. 5.00 stamps.

Requests for application forms received by post after January 16, 1988 will not be entertained. Application forms will also be available at the office of the department between 3.00 p.m. and 5.00 p.m. on all working days upto **January 20, 1989.**

— CHEQUE OR MONEY ORDER OR CASH PAYMENT NOT ACCEPTED.
— TELEPHONIC ENQUIRIES WILL NOT BE ENTERTAINED.

LAST DATE FOR RECEIPT OF COMPLETED APPLICATIONS : January 23, 1989

MAKING THE SYSTEM WORK

C.R. Pillai*

Universities—Complex Organisations

Our Universities have grown into large organisations. The BHU, for example, has about 15000 students, 1500 teachers, 6000 other employees, and a total campus population of about 50000. The concerns of the BHU management cannot remain confined to excellence in teaching and research; it has to worry perhaps more about the supply of water and power on the campus With the growth in their size, as also the addition of various new functions and responsibilities, the complexities in the managements of universities have increased manifold.

It has often been argued that we have a dual education system. This duality is represented by a small number of institutions known for their excellence on the one hand, and the mass education system which consists of the large universities and colleges which produce graduates, on the other. It is also argued that this duality is evident in their functioning. In almost every sphere, admission, programmes of teaching and research, holding examinations, etc., the performance of the elite institutions is satisfactory and indeed, commendable: there are not many disruptions which affect them. On the other hand, almost everything about the large universities and colleges is in disarray In many cases, admissions are not made on time, academic sessions are disrupted, teaching time tables are seldom adhered to, examinations are delayed, and so on. There are also reports of mal-practices in admissions, appointments and examinations It is this image—of the mass education system that pervades the higher education scene. The good performance of a small number of institutions is not visible enough to make any impact.

Universities and their Autonomy

It will be unrealistic to assume that our universities could become completely independent. Their funding for a long time will have to come from the Governments. Even if they are able to find out an alternate source of funding, they will only be substituting one kind of dependence for another. Surely, the agencies that provide funds would expect the universities to be accountable; there is no escape from this reality.

The strength of the autonomy of our universities will ultimately depend upon the value society attaches to independence in academic life. That some of our good institutions are performing well, and relatively free of a variety of external pressures establishes the fact that independence in academic life is respected. It is an acknowledgement of this respect that is reflected in the structure of self-governance that we have given to our universities. It is for the universities themselves to protect and strengthen this independence; no public institution universally perceived as ineffective and inefficient can legitimately claim protection by the society. It is worthwhile to note that in our country universities enjoy far greater institutional autonomy than universities in many other countries, including these in some European countries, where universities are coming under increasing pressures from their Governments.

The autonomy of a university is not the autonomy of its Vice-Chancellor. It is naive to assume that the responsibility of a Vice-Chancellor can protect a university from charges of corruption and inefficiency nor do the prestige and honour of the person holding the office of the Vice-Chancellor assure excellence in the performance of a university. It is true that extra-ordinary men had adorned the chairs of Vice-Chancellors, but it need not follow that all Vice-Chancellors are extra-ordinary men. The credibility of a University is damaged the most when the strongest charges of corruption and inefficiency come, not from outside, but from teachers of the university itself against the Vice-Chancellor and others.

Functions of Universities as Organisations

Universities perform several functions. Some of these are purely academic. But in order to perform these academic functions, the universities have to do several other things which most organisations also do. In judging the performance of a university, the record on both counts has to be taken into account. The impact or effectiveness of academic functions is not easily visible, but the performance of certain organisational functions make or mar reputations instantly (like handling of a trade union strike).

The Academic Functions

The main academic functions that the universities perform are teaching, research and ex-

---

[Paper presented at the 63rd Annual Meeting of AIU held on December 5, 7, 1988]

**Deputy Secretary, Department of Education, Ministry of Human Resource Development, Government of India, New Delhi.*

aminations. In terms of activities, these involve designing courses, determining their content, preparation of instructional materials, evolving new teaching and learning methodologies, holding classes, arranging examinations, providing for research, and so on. There are also several other functions like organisation of extension programmes and co-curricular activities. It must be said that in the performance of almost all these functions, our universities enjoy considerable freedom. The only limitation is that imposed by resources at its disposal, its freedom is not likely to be called in question.

It does not follow that performance of these functions is exclusively internal to the universities. On the other hand, in these areas, the universities are likely to benefit the most through process of interaction with external agencies. It is in this context that suggestions are often made for establishing institutional linkages, formal or informal consultative mechanisms and also involvement of the community. Unfortunately, there is no evidence to suggest that such interactive mechanisms are working in most of our universities. Universities are perhaps the most exposed among institutions. Unless this exposure leads to an informed appreciation of the strength and weaknesses of our universities, the popular perception of non-performance is only likely to persist. We must realise that without such interaction, universities will be left to function in isolation which will manifest in its worst form of inbreeding. If we have to break this isolation, we have to encourage greater openness in the functioning of our universities. Perhaps, this could be achieved through efforts to foster and maintain :

—linkages with research institutions/laboratories/industry/business, etc.

—Course Advisory Committees or consultative groups consisting of experts/professionals/local business leaders and public men;

—greater involvement of the community, both as participants and beneficiaries.

It is only through sustained efforts in strengthening these interactive processes that the focus of performance of our universities can be shifted to academic matters. We should not allow our universities to be judged by their record in dealing with strikes or handling mobs.

The record of most of our universities in the performance of their academic responsibilities has not been too inspiring. The general atmosphere of shortage of resources and the increasing pressure of expansion have provided a convenient alibi for non-performance. Our universities must begin consistent and systematic efforts in reviewing the courses and programmes, in renewing them, in introducing innovations in course designs and production of materials, in providing multiple choices to students in the combination of courses, and in retraining teachers and other staff to meet the needs of modernisation. The universities must do all that they can to ensure that it is their performance in these areas that matters most in judging their effectiveness.

The Organisational Functions

As corporate bodies administrating large funds, personnel, property, endowments, etc. the universities have to perform a variety of house keeping functions. Besides, they award contracts for large construction programmes or purchase of costly equipment; they look after the civic amenities and security on the large residential campuses that most universities maintain. As recipients of large funds from the Governments, they have to pay considerable attention to financial administration involving budgeting, accounting, auditing and so on.

Almost all organisations, including Government, develop norms and standards to regulate their operations in these matters. As users of public funds, universities have not only to adhere to certain norms and standards, but must also make it appear that they do so. Autonomy in operations does not absolve any public institution from adherence to such norms and standards and universities are no exceptions Indeed, all organisations evolve their own norms and adhere to them. Even if it is termed as a bureaucratic approach, there does not appear to be any escape from it. Autonomy cannot lead to anarchy.

The Central Functions

There are certain functions performed by universities which are crucial to their functioning. Performance of these functions demands a combination of academic judgement as well as organisational competence. These involve opening of departments, laboratories, colleges, etc. admission of students to various programmes of studies; and conducting examinations. All these are highly sensitive functions in which the universities come in direct touch with the public. These are also functions in the performance of which the dynamism of a university is put to the severest of tests.

(i) Establishment of Colleges and Institutions

The most distinguishing feature of the development of higher education in the last four decades has been its expansion. This pressure was felt the most at the first degree level and it was met by indiscriminately opening more colleges. A distressing aspect of this expansion was the total absence of any planning.

There was no concern for essential matters like who will provide the finances, who will maintain the college, who will teach, what will be taught, and so on. It has been simply a case of adding more of the same. It is only now that the UGC has formulated some guidelines for granting affiliation to colleges by the universities. The CABE has also endorsed these guidelines. Our universities must now be able to resist all the pressures, even those coming from the State Governments, and insist that no new college will be granted affiliation unless establishment of new colleges forms part of an integrated plan for development of higher education in the State and that the conditions prescribed in the UGC's guidelines are fulfilled to the satisfaction of the university. Even in respect of proposals emanating from private managements, the universities should insist that they should first be integrated with the total development plans in the State before the universities consider them.

(ii) Admission of Students

The overall scene of admissions to our universities and colleges is one of considerable confusion, if not chaos. Most of the prestigious institutions have admission tests of long standing. They are accepted by the society, and their credibility is seldom questioned. Unfortunately, it has not been the case with the generality of our universities and colleges. Even though admissions to these institutions are not as competitive as to professional courses and programmes, there are all manner of complaints; at any rate, there is considerable dissatisfaction. The situation is that on an overall basis, the system can absorb almost all the aspirants. In fact, there are many colleges with very low enrolments. The problem really seems to be that there is pressure on admissions to certain prestigious institutions and the courses offered by them. Perhaps this pressure can be diffused to a larger number of institutions if the course structure is modified and the facility of chosing different units from different subjects to make the desired combination for a degree programme is permitted.

On the procedural aspects also, considerable improvement is possible. The kind of mad rush that we witness from one college to another, can perhaps be avoided if some coordinated planned mechanism is developed. This is a matter in which the initiative should come from individual universities.

(iii) Examinations

This is one area in which we have talked so much during the last quarter of a century, but done precious little. Even where some efforts were attempted, we have gradually gone back. It is not that there are no remedies to the ills that pervade the examination system. Most of the professional institutions and the small unitary universities do not attract the kind of grave charges against their examinations as those in the affiliating system do. What is possible in the smaller units should be possible also in the larger system. Perhaps the answer is that we must decentralise. The domination of the single final examination will have to be replaced by a large number of minor examinations spread throughout the course. Examinations should be designed for each unit of the course, and held at regular intervals during the entire duration of the course. Students should have the freedom to offer themselves for such examinations according to the pace of their progress in studies subject of course, to the limitation of the total duration of the programme. Such examinations, if conducted at the college levels can ensure greater openness as well. It will remove a great deal of mistrust and suspicions by giving students opportunities to compare their own performance with those of others.

Such an approach will not only decentralise examinations but also promote the efforts at redesigning of courses comprehensively. Our education system cannot escape this responsibility. We should make a beginning here and now.

Resources for Higher Education

The resources made available for higher education have never been adequate. There is no possibility that the situation will change for the better in the foreseeable future. This is not our experience alone. Universities even in the developed countries face critical shortages in resources. There are reports of Governments cutting back on grants and universities retrenching their staff.

There is no alternative to improving the effectiveness of what is already available. In fact, we should now begin thinking of radical changes in the processes of allocation of resources. Some possibilities that suggest themselves are :

(a) The present practice of incremental allocations for every new programme or project should be reviewed. Allocations for basic infrastructure like space, equipment, additional staff, library resources, etc. need not be provided to every university for every programme. The allocation for these purposes should be need-based. In the case of well established universities, sanction of projects should be related to the availability of basic infrastructure. This would imply a differential approach to funding procedures. But it might be worthwhile trying it.

(b) The present approach to resource allocation is fragmented. There are several committees which allocate resources for programmes assigned to them. There is little coordination among them. Further, these allocations are almost always adhoc. Mechanisms have to be developed for an integrated approach to resource allocation processes.

(c) The incremental approach in respect of staff positions has escalated the maintenance expenditure dramatically. It also leads to a situation of gross under-employment and low productivity. We must stop recruitment of new staff for every new activity. We should instead encourage retaining of available manpower and their redeployment in teaching as well as in other areas.

Conclusion

The message of 'making the system work' is assentially to improve the efficiency and effectiveness of our universities and colleges. These improvements are possible only if several conditions are fulfilled. Some of them are external to the education system; but many are within the competence of universities and colleges.

Effectiveness and efficiency are functions of discipline. Discipline in this case has to be understood not in terms of a command-control structure, but in terms of different components that make the system being ordered in an organic relationship to ensure greater productivity, creativity and orderliness in operations. The following are some thoughts for translating this message into a blue-print for action :

(i) Every university in the country must prepare a long term perspective plan for its growth and development. This perspective must set out very clearly what it wants to achieve during this period, the directions in which its own development will be guided and the strategy which it wishes to adopt for the fulfilment of the objectives so spelt out.

(ii) The long term perspective must also indicate, in broad terms, the resource mobilization that the university envisages for its perspective plan. It is no use preparing plans without assessing the resources that might be available. Even if the additional resources have to come through grants from State Governments or the UGC, an attempt should be made to project these grants on the basis of past experience.

(iii) The perspective plans so framed should be subject to constant monitoring, regular assessment and midcourse corrections. It might also involve addition of objectives, or deletion of some projected earlier.

(iv) Concerted efforts will have to be made to project the outcome of the academic efforts of our universities in terms of new courses designed, materials produced, new teaching-learning methodologies evolved, etc. Unless the focus shifts to academic efforts, the performance of universities is likely to be judged on non-academic considerations.

(v) It is important that a new work ethos and a work culture should emerge in our universities. There has to be considerably more openness in all areas of operations. Every effort will have to be made to inform the students, their parents and the public about what every university does and what can be expected from it.

(vi) Communication within the universities is also equally important. For instance, the annual budget of the university when it is finalised should be a document that is available to everybody. It will help everyone know what can be expected in terms of projects, programmes, contingencies, and so on. It will also help faculties, departments and other units to process sanctions expeditiously and openly.

(vii) A practice could be developed by which decisions taken by various bodies of the universities, the Executive Council, the Academic Council, Faculties, etc are given wide publicity. Ordinarily, no decision should be withheld from being published unless it is of a confidential nature.

(viii) Formulation of a time-frame for various operations of the universities and its adherence are very necessary. As public institutions, universities deal with students, parents and a large number of members of the public. The periods of admission, programmes of teaching, vacations and holidays, preparation time, the period of examinations, the declaration of results, etc. are the most important events in which the students and the public are interested. It should be the endeavour of every university to prapare such calendar of events and make efforts to adhere to it. If the programmes and activities of the universities are properly planned, there is no reason why such calendars cannot be prepared. Afterall, the efficiency of an organisation will be judged by comparing what it planned to do and what it did. Our universities should not shy away from being judged on this count as well. ☐

SUCCESSFUL INNOVATION

Describing the present as an "Age of Entrepreneurs", Shri S.L. Kirloskar, a leading industrialist, noted the emergence of women entrepreneurs and called on them to be self-reliant and strive for quality. Excerpts from his convocation address delivered on November 26, 1988 at SNDT Women's University follow :

It is a great honour and indeed a privilege to be invited to deliver the convocation address of the poineer Women's University in India and particularly the opportunity offered to me to pay homage to the founder Maharshi Dr. Dhondo Keshav Karve, with whom I was intimately associated and who having studied the project of Women's University in Japan, realising the objectives and philosophy of that institution founded this university seventy two years ago, without waiting for recognition from the Government and with only four students on roll. I also keep on record my appreciation for Sir Vithaldas Thackersey's donation given in 1920 which put this university on a firm financial footing.

I am glad that today the university has on its roll 30,000 students in the formal as well as non-formal streams, 29 colleges, 30 university departments, 10 faculties and 3 campuses.

I am really very glad that the main thrust of this University is Research on Women's Studies, Research in Foods and Nutrition. Technical Courses and Para-Medical Courses, Continuing Adult Education, Legal Aid Cell, Open University Programmes, Population Education and Management Development Programmes for Women Entrepreneurs. I am particularly happy to know that in collaboration with the Ministry of Human Resource Development and USAID (US Agency for International Development), the Department of Education-Management of this university conducted the first such programme for women entrepreneurs in April/May 1987, and currently another Programme of Management Development for Women Entrepreneurs has been recently concluded in collaboration with the Association of Commonwealth Universities, in October/November 1988. These steps taken by SNDT University are not only appropriate but are keeping in line with the needs of the time. I would like to emphasize that the main thrust should be on Management Development and Job Oriented Courses.

It is a happy co-incidence that with the coming up of new 'Education Policy, newer areas of technological advances newer dimensions in the field of management, where women can contribute to the maximum, have been considered by this university for Human Resource Development, both in the university system and also in the open system. I particularly commend this university's lead in Open University educational activities.

Need for Self-Reliance

The emerging social climate requires every individual to be completely self-reliant. In a country which is fast developing on its own, no woman can afford to be dependent on others financially.

Fortunately, self-reliance today is a clear possibility for more and more women. Financial institutions and banks offer a variety of schemes especially for women. Government training and financing schemes provide women facilities to run small enterprises and earn without leaving their families. Today small scale and cottage industries offer unprecedented opportunities to women. In many states, education is free for women and opportunities go a-begging for those who are adventurous and enterprising.

Emergence of Women Entrepreneurs

Amongst all these opportunities, is the fast emerging trend of women as entrepreneurs. Women have now begun to enter the competitive world of business. Women have become more independent, achievement-oriented and career-minded. They want to enjoy a sense of achievement and get recognition from society.

What is most interesting to note is that the entrepreneurship of women is not just confined to the traditional fields such as Education, Nursing, Beauty Parlours, Boutiques, etc., but extends into areas such as Telecommunications, Electronics, Computer Sciences and the service sectors. And I found that most of them are doing well. I hope these examples will be inspiring for many others, and particularly the upcoming graduates.

Attributes of a Successful Innovation

A few points need to be kept in mind for any aspiring Entrepreneur :

- Purposeful, systematic innovation begins with the analysis of the opportunities.
- Innovation is both conceptual and perceptual. Successful

innovators work out analytically what the innovation has to satisfy an opportunity.

- To be effective, an innovation should be simple and immediately understood by the vast majority of "Ordinary" human beings. Every innovation that creates new uses and new markets should be directed towards a specific clear, designed application.
- Innovations should always be for the present and for the future keeping in view the needs of the time.
- A successful innovation aims at leadership. It need not necessarily become 'Big Business' but the aim at leadership should be present from the beginning, otherwise, it is unlikely to be capable of being innovative enough and to establish itself.
- Finally, innovation requires a great amount of work, and innovators need to build on their strengths.

A successful innovation depends upon three things—Initiative, Commitment and Action.

Difficulties Faced

For a married women, working outside the home, is a fine balancing act between home and work. All such women agree that supportive husbands play a very important role in their success. The balancing act becomes so much easier.

I feel that the achievements of the first generation of women entrepreneurs is particularly meaningful and important. They have not only to manage two fronts—business and family, but they have also to be instrumental in breaking many mental barriers against women working outside the home. Such a task involves making a large number of sacrifices, like not being able to spend a lot of time with the family and children and having to depend on outside help, to look after them. It also involves developing a new personality to brush aside snubs and jeers faced in day to day work.

Need for Social Change

Out of the problems faced by women, only time can solve some. For example mental barriers. These can only be broken over a period of time. Perhaps the next generation will have an easier time.

However, positive steps can be undertaken to solve one major problem, and that is of childcare. Creches for children under the school going age are a tremendous asset to the working women. One should not depend on the joint family system to look after the children. Nuclear families are generally the norm in urban areas today. It is most unfair to put a working woman in a situation where she has to choose between her career and her family. I want to emphasize that we all must encourage an environment which nurses women entrepreneurs.

Entrepreneurs Need to be Groomed

The concept that entrepreneurs are born is fast changing, this has been established in many advanced and developing countries. There are many ways of nursing entrepreneurship-train, groom and motivate the 'Employee Class' to convert them into an 'Employer Class'. It is possible to inculcate entrepreneurial attributes, leadership skills and managerial orientations in women. Entrepreneurship can be systematically and deliberately propagated among those who are identified and ascertained to have the latent disposition and potential for this This assumes particular importance when considering the changes planned by developing countries.

The most critical vehicle for the development of entrepreneurship is the educational system. Entrepreneurship should be inculcated right from the school level. Entrepreneurial interest and awareness must be generated among children and also stimulate within them a disposition towards entrepreneurship. Tertiary level education also needs to respond to the development imperative. Universities and colleges must have specifically structured courses capable of producing graduates with the skills, knowledge and values to start as entrepreneurs, entrepreneurial managers or entrepreneurial administrators. I understand that such poineering restructured courses in entrepreneurship have been started at Nasik College under the leadership of Prin. Dr. M.S. Gosavi with success. I commend this to all concerned.

Entrepreneurship can also be propagated through short-term trading programmes, which have been formulated and implemented in many countries. Training programmes must be formulated in such a way that they really match the type and level of entrepreneurial moves to be achieved. I am glad this university has taken a lead in this regard.

Achieving Excellence Through Quality

The success of any management lies in achieving excellence and to me, the only gateway for achieving excellence, is through quality. Quality is everywhere : it has to be a culture of our society : a way of life, commitment to the systematic practice of ensuring quality is the hub of all the high quality and trouble-free operations, while delivering goods and services. This is true, whether it is public sector or private sector, small or big enterprise, whether educational institutions or airlines or Public Works Dept. constructing roads or for any service organisations, as such for the society.

We want to expose for managers at all levels, the range of knowledge, skills, and attributes, essential for 'Responsible Quality Competence'. The quality and scale of management available to business, government and other organisations, as I see, will probably be much different in the next two decades as the current state of management has been different, from that of 1960's. I feel, leadership of tomorrow can only sustain on *'Competition'* and can only grow on achieving excellence through 'Quality'. Higher education for women can be oriented to achieve this end.

I want to stress quality as a strong weapon for marketing. I always say, that the aim of any business is, to earn profit, by meeting the needs of the customers, through quality of goods and services. Thus by maintaining quality standards, the marketing is ensured. It is not the first order, but the repeat orders, that is important. Hence my emphasis on quality is for better marketability and sustaining growth with profitability. Instead of controlling prices we can control quality : meaning thereby, arrest bad quality. I want to stress that quality can create customers, attain customer-satisfaction and thereby, enhance marketing.

In achieving excellence, top management has to have constant thinking about these. In creating and building wealth-producing organisations, the essence is "Entrepreneurship"; I see before my eyes right now, the "Age of Entrepreneurs".

I firmly believe that no field is unsuitable for women. In fact women by nature are endowed with certain qualities which will make them more suited for different fields including technology and hardwares, along with education, training, and software. But for this, the pre-requisite is women must come up and decide to compete with conviction and courage. This decision must be on their own, that they should firmly believe and act upon. The role of the university is to develop a total integrated personality for women to enable them to accept the challenges of the present time. This will go a long way in helping the nation to draw upon human resources for various jobs. The independent status for women is well accepted but success depends upon accepting challenges and converting challenges into opportunities.

I have seen the process of industrialisation before and after independence, and during my last sixty years of experience, in all the speeches and writings, I have strived to carry only one message, "WORK HARD AND WORK WITH DEDICATION". Try to attain the highest level of excellence in whatever you undertake to do in all walks in life. Look at all problems and difficulties, as so many challenges and try to face them with optimism and courage. I look forward to a day where this university expeditiously takes the steps for management development for women keeping in view the need of the time.

Nehru Memorial Museum & Library

Fellowship Programme In Modern History And The Social Sciences

The Nehru Memorial Museum and Library offers fellowships in the range Rs. 3700-5700 and Rs. 2200-5300 plus allowances at Central Govt. rates and contingency grant of Rs. 7,500/- and Rs. 5,000/p.a. respectively for research in 'Modern Indian History and Contemporary Studies'. Scholars applying for Fellowships may work on the nationalist movement, or on Modern Indian History, or on Contemporary Indian Society The Fellowships will be for three years. renewable for another two years. The Fellowships are open to historians and social scientists with good academic record and research experience, preferably already in possession of a Ph.D. degree.

The Nehru Memorial Museum and Library reserves the right of publication of the research papers and monographs prepared by the Fellows during the tenure of fellowship. The Fellows will be based in Delhi.

Those who wish to be considered for fellowships should send a note not exceeding 1,000 words on the project proposed to be undetaken and details of their qualifications along with the following information to the Director, Nehru Memorial Museum and Library, Teen Murti House, New Delhi-110011 latest by 31.1.1989: (i) Name (ii) address (iii) date of birth (iv) academic record from High School examination (v) details of post-graduate work and list of publications with copies (vi) details of how employed so far, and (vii) names and addresses of two referees. Employed scholars should furnish a certificate from the employer that, if selected, they will be released to avail of the fellowships.

davp 88/584

Indian School of Mines

DHANBAD-826004

(A Deemed University under UGC Act)

ADMISSION NOTIFICATION—1989

An all India Entrance Examination will be held at a large number of Centres throughout India on **5th and 6th May, 1989** (in supersession of dates notified earlier) for admission to the following B. Tech and M Sc. (Tech.) programmes offered by the School.

Programmes	**Eligibility**
(A) 4-Year B. Tech.	
1. Mining Engineering 2. Opencast Mining 3. Mining Machinery 4. Petroleum Engineering 5. Mineral Engineering	Pass in I Sc or two year PUC or class XII of CBSE or + 2 of 10 + 2 pattern or equivalent exam with Physics, Chemistry, Mathematics and English. Maximum age limit 22 yrs except for Petroleum Engg. which is 21 years.
(B) 3-Year M.Sc. Tech.	
1. Applied Geology	Pass in B.Sc (3-Yr course)/(B.Sc 2-Year + 1-Year Bridge course) of 10+2+3 pattern with Geology as Major/Hons. subject and any two subjects out of Physics, Chemistry and Mathematics.
2. Applied Geophysics	Pass in B.Sc (3-Yr course)/(B.Sc 2-Yr + 1-Yr Bridge course) of 10+2+3 pattern with Physics as Major/Hons. subject and Mathematics as subsidiary subject and also any one subject out of Chemistry, Geology, Statistics, Electronics, Computer Science. Maximum age limit 24 yrs.
(C) 3-Year Condensed B. Tech.	
1. Mining Engineering	Diploma in Mining or in Mining and Mine Surveying.
2. Mining Machinery	Diploma in Mech./Elect. Engg. No Age limit.
3. Mineral Engineering	Diploma in Mining/Mineral Engg./Chem. Engg./Elec./Mech. Engg.
(D) Make-up admission 2nd year of B.Tech.	
1. Mining Engineering 2. Mining Machinery 3. Mineral Engineering	(1) B.Sc. (2 year course) with Physics, Chemistry and Mathematics. Or (2) Pass in Institution of Enggs studentship Exam with one year's industrial experience in relevant field. Maximum age limit 23 yrs.
(E) Make-up admission 3-Year of B. Tech. :	
1. Mining Engineering 2. Mining Machinery	Diploma in Mech/Elec/Mining Engg with pass in Sec. A of AMIE and with one year's industrial experience in relevant field. No age limit.

Details regarding all other informations are available in the Memorandum of Information (Prospectus) available along with the application form from the ISM Cash Counter in person or by post from **1st January, 1989 to 18 February, 1989** from the office of Registrar, Indian School of Mines, Dhanbad-826004, on payment of Rupees Ten only in the form of Crossed Indian Postal Order payable at ISM Post Office. **Bank Draft/Money Order will not be accepted.** Request for applications must clarify the number of the course viz. (A), (B), (C), (D) OR (E) which must be superscribed on the envelope.

Reservation : 15% and 7.5% seats are reserved for SC/ST candidates in all courses. A few seats in 4-year B.Tech programme and 3-year M.Sc Tech programme are reserved also for girls, and sons/wards of defence personnel.

ANDHRA PRADESH OPEN UNIVERSITY

HYDERABAD

ELIGIBILITY TEST FOR ADMISSION TO THE B.A./B.Com. COURSES (1989-90)

- **Eligibility Criteria :** Candidates with or without any educational qualifications are eligible to appear at Eligibility Test for admission into B.A./B.Com. 3 year Degree Course provided they complete 21 years of age by 1st July, 1989.
- **Date, Venue and Media of Eligibility Test :** The Test will be conducted on the 12th March, 1989 (Sunday) in English and Telugu media at all the study centres of Andhra Pradesh Open University which are located in the Twin Cities of Hyderabad & Secunderabad and in all the Districts of Andhra Pradesh. It may be conducted outside the State also if a considerable number of candidates apply from a particular place outside the State.
- **How to Obtain the Application Form :**
  - **(a) By Post :** You can obtain the application form and prospectus by Registered post from the office of the Controller of Examinations, A.P. Open University, 8-3-952/10/2/1, Srinagar Colony Road, Panjagutta, Hyderabad-500 016 by sending a crossed demand draft/postal order for Rs. 15/- drawn in favour of the Registrar, A.P. Open University along with the requisition letter.
  - **(b) In Person :** You can obtain the application form & Prospectus in person by submitting a crossed Demand Draft/Indian Postal Order for Rs. 5/- drawn in favour of Registrar, A.P. Open University payable at Hyderabad from the office of the Controllor of Examinations at the address mentioned above or from the office of the Co-Ordinator of any of the following study centres of the University in Andhro Pradesh.
- **District Study Centres :** (1) Adilabad Govt. Deg. College. (2) Alair-Govt. Jr. College. (3) Ananthapur-Govt. Deg. College. (4) Banswada Govt Jr. College. (5) Chittor-P.V.K.N. Govt. Deg. College. (6) Cuddapah-Govt. Deg. College for Men. (7) Eluru-Sri. C R. Reddy College. (8) Godavarikhani-Govt. Jr. College. (9) Guntur-J.K.C. College. (10) Hindupur-S.D.G.S. College. (11) Kakinada-P.R. Govt, College. (12) Karimnagar-S.R.R. Govt. Deg. College. (13) Kavali-Jawahar Bharati College. (14) Khammam-S.R. & B.G.N.R. Govt. College. and Govt. Deg. College. (15) Kothagudem-K.Y K.R.Y. & B N. Goud's Govt. Jr. College. (16) Kuppam-M.F.C. Govt, Jr. College. (17) Kurnool-Silver Jubilees Govt. College. (18) Mahabubnagar-M.V.S Arts & Science College. (19) Machilipatnam-Andhra Jateeya Kalasala. (20) Martur-Govt. Jr, College. (21) Mulugu-Govt, Jr. College (22) Nalgonda-Nagarjuna Govt. College. (23) Nellore-Sri Sarvodaya College (24) Nizamabad-Girraj Govt. College. (25) Ongole-C.S.R. Sarma College. (26) Peddapally-Govt. Jr College. (27) Pitapuram-R.R.B.H.R. Govt. Jr. College. (28) Polavaram-Govt. Jr. College. (29) Rajahmundry- Govt. Deg. College. (30) Sangareddy-Tara Govt Deg. College. (31) Satyavedu-Govt. Jr. College. (32) Siddipet-Govt. Jr. Gollege. (33) Shadnagar-Govt. Jr. College. (34) Sirpurkagaz Nagar-Govt. Jr. College. (35) Srikakulam-Govt. Deg. College. (36) Tirupathi-S.V. Arts College. (37) Vijayawada-P B. Siddartha College. (38) Vikarabad-S.A.P Arts & Science College. (39) Visakhapatnam-Dr. V.S. Krishna-Govt. College. (40) Vijayanalgaram-Maharaj College. (41) Warangal-Arts & Science College (Kakatiya University Campus, Subedari) (42) Yelmanchili-Govt. Jr. College.
- **Twin Cities Study Centres : Hyderabad :** (1) Govt. City College, (Near High Court). (2) Pragati Mahavidyalaya, Hanumantekdi. (3) A.V. College, Domalguda. (4) Govt. Deg. College for Women, Begumpet. (5) New Govt. Deg. College, Khairatabad. (6) Govt. Jr. College, Kachiguda. (7) Govt. Jr. College, Alia. (8) Govt. Jr. College for Boy's, Nampally. (9) Govt. Jr. College, Old Malakpet. **Secunderabad :** (10) Sardar Patel College, Padmaraonagar. (11) D.B.P.M. Deg. College,. ('Key's High School Premises). (12) Rly. Deg. College, Lalaguda. (13) Govt. Jr. College, S.P. Road.
- **Commencement of Sales of the Eligibility Test Application Forms :** 5th, December, 1988
- **Last Date for Sale of the Application Forms :** 3rd January, 1989.
- **Last Date for Submission for Filled-In Application Forms :** 10th January, 1989.
- **How to Apply :** You have to fill in the application form and submit it to the Controller of Examinations, A.P. Open University, 8-3-952/10/2/1, Srinagar Colony Road, Panjagutta, Hyderabad-16, in person or may be sent by Registered post so as to reach him on or before **10th January, 1989.**
- **Note :** DDs/IPOs obtained prior to notification date (5th Dec.' 88) are not accepted. Money order/cheque/cash payment will also be not accepted.
- **Direct Admission to B.A./B.Com./B.Sc. Degree Courses :** Candidates who have passed the Intermediate Examination conducted by the Board of Intermediate, Andhra Pradesh or any examination equivalent thereto are eligible for direct admission to the degree courses and are not required to appear at the eligibility test. A separate notification will be issued for such candidates sometime in the month of **April/May, 1989.**

REGISTRAR

DEVI AHILYA VISHWAVIDYALAYA, INDORE

M.B.A. ADMISSION M.C.A.

Applications are invited on prescribed form for admission to July 1989 session :

M.B.A.	(Full-Time) Two Years
M.B.A.	(Part-Time) Three Years
D.M.M.	(Diploma in Marketing Management : Part-Time) One Year
M.C.A.	(Master of Computer Application : Full-Time) Three Year

ELIGIBILITY

M.B.A. (Full-Time) : Atleast Second Class Graduate in any discipline from a recognised University.

M.B.A. (Part-Time)
D.M.M. } As above and two years Full Time executive experience after graduation.

M.C.A. : Graduate in any discipline with at least 55% marks in aggregate and Mathematics equivalent of B.Sc. I of this University.

WRITTEN TEST : First week of February 1989.

APPLICATION FORMS : Can be obtained by sending Rs. 20 by Demand Draft in favour of Registrar, D.A.V.V., Indore and self-addressed envelope (18x24 cm.) with stamp of Rs. 4.50/- affixed, from the following :

For M.B.A. & D.M.M. : Director, Institute of Management Studies, Devi Ahilya Vishwa Vidyalaya, Indore

For M.C.A. : Head, Computer Centre, Devi Ahilya Vishwa Vidyalaya, Khandwa Road, Indore.

Candidates appearing in Final Year of Degree Exam. can apply for M.B.A. (Full-Time) and M.C.A. A candidate can apply for both M.B.A. (Part-Time) and D.M.M. While asking for application form, specify the course for which you want to apply.

SCHOLARSHIPS

M.B.A. (Full-Time) : Most likely to be provided as Company Management trainees (half-time) for two years with stipend of Rs. 700.

M.C.A. : Scholarship Rs. 400 in final year subject to 60% Marks in I and II year.

LAST DATE OF RECEIPT OF ALL APPLICATIONS DULY COMPLETED , JAN. 2, 1989

REGISTRAR

UNIVERSITY ADMINISTRATION

After inaugurating the Administrative Building of the University of Hyderabad on November 15, 1988, Prof. K.S. Murty, Vice-Chairman, UGC gave his personal views on university administration. Given below are some of the important points made by him in the speech.

I. The function this afternoon may naturally turn one's mind to University Administration. In 1971 in an article I published I put forward the view that University Administration should have to be different in its methods from that of Public Administration and Business Administration, because of the aims and purposes of higher education, the qualifications and psychology of scholars and scientists working in them and the histories and environments of institutions of higher learning. Now after 17 years my old apercu is further strengthened. This means a University cannot and ought not to be run in the way of government secretariat/department or a private manufacturing/commercial concern is run. It follows that universities as well as organisations established for the promotion and coordination of higher education and for the determination and maintenance of standards in institutions devoted to it, would do better than: (1) Copying the management models obtaining in government, industry or commerce, and (2) invoking the expertise of specialists whose knowledge is only that of management techniques in these latter fields.

It is important to note that so eminent an authority as Peter F. Drucker predicts that "the typical large business 20 years hence" will "bear little resemblance to the manufacturing company of 1950s", but will be more likely to resemble organisations like: the hospital, the university, and the symphony orchestra". What are the characteristics of these? They are, Drucker rightly points out, "Knowledge-based, composed largely of specialists who direct and discipline their own performance through organised feedback". (*Harvard Business Review*, Jan-Feb. 1988). The university is an "information-based organisation"; and technology, need for specialised knowledge and economics are driving corporations in the developed world also to become like that. In such a situation it would be regressive for universities and any organisation established *to promote and coordinate* university education to pattern themselves after non-information-based organisations or obtain guidance from those whose experience is limited to them.

II. Based on what is or has recently happened in a couple of states, the cry of university autonomy in danger has been raised. This is justified provided it is understood that university autonomy should not mean just autonomy for the Vice-Chancellor and Syndicate/Executive Council. Unless the freedom to teach, learn and investigate has percolated to the faculty, the department and the individual scholar or scientist, there is no *real university autonomy*. This is not so in most of our universities.

"Freedom within the law to question and test received wisdom, and to put forward new ideas and controversial or unpopular opinions, without placing themselves in jeopardy of losing their jobs or privileges they may have at their institutions" (British Education Reform Act 1988, Pt. IV, 202) must be ensured to academic staff. This is one aspect of academic freedom. If and when governments or bodies which have the power to allocate and disburse grants to universities impose on the latter uniform courses, curricula and syllabi, *that is an infringement of institutional freedom*. If there can be such ideal uniform things, there need not be different universities; a single university for the whole country as in Napoleonic France will be better. This only means that while diversity and innovations should be allowed and encouraged, determination, maintenance and coordination of standards also should be done by organisations established for allocation and disbursement of grants.

III. So far, in our country the task of promoting and coordinating university education in a planned and systematic way and determining standards in universities has not been a complete success. Among others, some of the reasons are: Governments have quite often established universities as well as colleges without first obtaining impartial expert advice. Universities have not fulfilled the necessary requirements. Hardly ever have weak or substandard university departments been inspected, followed by a clear recommendation regarding the action to be taken to improve them; and even when guidelines, recommendations or suggestions were made, non-compliance of them by a university has not resulted in withholding of grants from it. In turn, affiliated colleges have not been inspected and advised, ensuring that advice is followed in a rigorous way. In a 'soft' state that India is, it is difficult for governments or organisations to take hard decisions and implement them.

IV. The situation in the sphere of higher education can be improved only if as in Britain (Education Reform Act 1988) it is decided to rationalise and streamline it. For this, some institutions/departments may have to be closed or merged with others, performance indicators devised and failure to perform up to the mark drastically dealt with, rules on granting tenure tightened, and grants made subject to terms and conditions thought fit by the funding agency, with their utilisation closely monitored by it. But it would be a grave mistake if anyone thinks I am making a plea for abolishing the UGC as the British have decided to do, or for going in for Conservatism, introducing a greater number of industrialists and businessmen into university bodies and their management techniques into university administration.

Our universities ought to be made to function in accordance with our secular, socialist, democratic and republican ideals. Our ideal university should be what was envisioned by Jawaharlal Nehru and C.D. Deshmukh, a great Chaiman of UGC. ☐

Workshop on Examination Reforms at Bharathidasan Varsity

The Curriculum Development Cell, Bharathidasan University, organised a three-day Workshop on "Examination Reforms" from 17th to 19th November, 1988 at Tiruchirapalli. The chief objectives of the Workshop were to familiarise the teachers with the evaluation procedures and to discuss the minimum Examination Reforms that the Universities could contemplate on.

Delivering the keynote address, Dr. G Rangaswamy, former Vice-Chancellor, Tamilnadu Agricultural University, Coimbatore observed that if anything was wrong with our academic standards, it was because of our defective examination system. While stressing the need for contemplating on certain minimum Examination Reforms at the tertiary level, he suggested that the syllabus for each paper could be well demarcated into four or five viable units so that questions might be asked from each unit without allowing the candidates to omit any section. He argued that continuous internal assessment would be an effective component, in evaluating the students' overall achievement

Theme papers presented at the Workshop included (1) Test Construction to Evaluate Students Achievement, (2) Continuous Internal Assessment, (3) Assessment of Laboratory Performance, and (4), Marking, Grading, Scaling and Moderation.

At the Valedictory function, Dr. S. Muthukumaran, Vice-Chancellor, assured the participants that the recommendations of the Workshop would be given due consideration by the Academic bodies of the University. He appealed to the participants to consider their responsibilities to the welfare of the students' community. He pointed out that the growth and development of every individual, by and large, depended on the growth of his institution and therefore each one should give serious thought as to how he could contribute to the growth and welfare of his institution.

After three days of detailed deliberations, some of the important recommendations that emerged were :

(1) Instructional objectives for each paper of the course are to be prepared and incorporated in the curriculum.

(2) The syllabus for each paper is to be restructured and organised into five or six viable units. The time allotted for teaching unit may also be specified. Reference books suitable for each unit shall be clearly indicated.

(3) A table of specifications for each paper of the examination has to be prepared and included as an integral part of the curriculum to guide question paper setting. This table shall include (1) Weightage assigned to each unit of the curriculum for the paper; and (2) Weightage assigned to various abilities to be tested.

(4) The question paper for each theory subject shall consist of three parts as indicated below :

Part-A : Short answer questions each carrying 2 marks. 15 to be answered with choice (30 marks).

Part-B : Medium answer questions each carrying 5 marks.

5 to be answered With internal choice (25 marks).

Part-C : Long answer structured essay type questions each carrying 15 marks. The marks assigned for each of the sub-divisions in an essay question shall be specified. Of these 3 to be answered with internal choice one of which may be compulsory (45 marks).

(5) Every question paper setter shall be required to prepare a suitable scheme of valuation for and solution(s) to problem(s) in each paper set by him.

(6) All question papers shall be scrutinised and processed by a duly appointed board of paper setters. The board shall also consider and finalise the scheme of valuation received from the setters.

(7) For the implementation of Continuous Internal Assessment (CIA) at the UG level, the tools to be used shall be (a) written tests in case of theory subjects, performance tests for laboratory work; and (b) attendance.

(8) Wherever the CIA is in vogue, the marksheets shall contain the following particulars : (a) marks secured in IA (Internal Assessment);(b) mean of the IA marks for that subject in the concerned institution; (c) marks secured in University Examinations (UE); (d) mean of the UE marks for that subject in the University.

(9) The raw marks and the corresponding percentile for each paper shall be indicated in the marksheet.

(10) Wherever CIA is in vogue, an Appeals Committee shall be constituted in each college; further the implementation of CIA in various institutions shall be monitored by the University.

(11) The existing marking system shall be continued in preference to the proposed grading system.

(12) All results shall be finalised only by a duly appointed Board of Examiners. The Board shall also be empowered to do justice to all border line cases whether it is a Pass/Fail border (not more than 5%), II class/III class or I class/II class border (not more than 0.9%).

West Bengal Varsities to seek Corporate Financing

The West Bengal government is reported to be considering the possibility of corporate financing for specific academic courses in universities in the state. It has, therefore, asked universities to seek collaborations from companies for courses like business management. This kind of arrangement has been successfully attempted in Bombay and in the Indian Institutes of Management.

It is reported that of the state's annual higher education budget of Rs. 97 crores, only about 20 per cent is spent on R and D.

Corporate funds, while helping the universities to tone up their R and D activities, would afford opportunities to the contributors to select persons with promise for their organizations. Good understanding between the universities and companies can also eliminate the mushrooming of non-registered institutions, which are minting money, by running business management courses.

It is also reported that the state government has asked the universities to consult it before sending their Eighth Plan projects to UGC for grants as there was no point in first getting the projects sanctioned by UGC and then coming to the state for the matching grants, and finding them stalled because of lack of funds.

Applied research in science is also sponsored in universities abroad. "Science parks" are examples of meaningful collaboration between universities and corporate bodies. Indian Institutes of Technology (IITs) have, to a certain extent, succeeded in working out collaboration arrangements for their projects. That is an example which the West Bengal government would like universities in the state to follow, it is said.

Education Data Computerised in Andhra Pradesh

An All-India Educational Survey conducted all over the country reveals that Andhra Pradesh has become the first State in the country to fully computerise data relating to available educational facilities in the State. Information relating to 54,000 schools in 27,000 villages in all the 23 districts of the State has been computerised under a project taken up by the Government-owned Andhra Pradesh Technology Services Limited (APTS).

As many as 157 tables were generated, providing vital information for educational planning at both the State and Central level. This information will help assess the present position of educational facilities in terms of coverage of school going population, enrolment in general and boys and girls belonging to the Scheduled Castes and Tribes, in particular.

The data base would also help assess availability of physical facilities like school buildings, playgrounds, drinking water in school premises and furniture. Important information on inputs like blackboards and even chalks could be had with use of a simple command to the computer. The data base also helps know about academic and professional qualifications of working teachers, with particular reference to science and mathematics teachers.

Rs. 1.02 Crores Grant for APAU

The Andhra Pradesh Government is reported to have sanctioned Rs. 1.02 crores to the Andhra Pradesh Agricultural University (APAU) for setting up an agricultural college at Srikakulam, an agricultural polytechnic at Palem in Mahboobnagar district and a livestock research station for sheep and goat at Vijayawada during the academic year 1989-90. According to the Vice-Chancellor of APAU, Dr. A Appa Rao, the site for the proposed agriculture college at Srikakulam has also been identified.

Indian Council of Chemists meets at Tirupati

The VIII Annual Conference of the Indian Council of Chemists was hosted by the Department of Chemistry, Sri Venkateswara University at Tirupati. Inaugurated by Prof. G.J.V. Jagannadha Raju, Chairman, A.P. State Council of Higher Education, Government of Andhra Pradesh, the conference brought together research workers of different universities and institutions who discussed on research problems of common interest. The deliberations of the conference had a bearing on the further improvement of quality of research work concurrent to the present needs of the country and the people.

At the inaugural function, Shri G. Muddukrishnama Naidu, Minister for Forests, Government of Andhra Pradesh, was the chief-guest. In his address he indicated that scientists should ensure that the benefits of modern science reaches the common man and help in the betterment of the condition of human life.

A symposium on 'Problems of Energy and the Role of Chemists' was also held on this occasion. The papers presented, special lectures delivered and the discussions held in this symposium confined to alternative energy sources, challenging problems relating to energy and utilization of energy sources.

425 eminent scientists from various universities, IITs, CSIR Laboratories and other research institutions participated in this National Conference from all over the country at which 600 research papers were presented in all sections of chemistry. Several lectures were also delivered by eminent scholars.

IGNOU to Introduce New Courses

The Indira Gandhi National Open University (IGNOU) is introducing a new diploma course in food and nutrition from next academic year onwards. According to the IGNOU Vice-Chancellor, Prof. G. Ram Reddy, the proposed diploma course would be in addition to the 5-month certificate course in food and nutrition currently being conducted by the University. The new course to be imparted in English, Hindi, Gujarati, Assamese and Telugu would be extremely helpful to the rural health workers and women.

Prof. Ram Reddy pointed out that since its establishment in 1985, the IGNOU had so far introduced eight academic programmes attracting as many as 32,000 students from all over the country. He said that plans were in the offing to introduce undergraduate courses in library sciences and diplomas in early child-care and rural development next year. In addition, technical courses in varied fields would be introduced by 1990.

He said that a coordinating council for open universities had also been constituted. The council will take policy decisions to avoid duplication of course materials in the various open universities of the country besides taking steps for an uniform credit system.

Prof. Ram Reddy said the IGNOU was holding discussions with the Information and Broadcasting Ministry for featuring its programmes on AIR and Doordarshan. In all probability these educational programmes would be aired through the official media from next year onwards, he added.

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertation as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Koparde, P.V. *Fixed point theorems in Hilbert Space.* Shivaji. Dr. B.B. Waghmode, Department of Mathematics, Shivaji University, Kolhapur.

2. Surve, G.P. *Studies in general relativistic continuum mechanics.* Shivaji. Dr. G.G. Asgekar, Department of Mathematics, Shivaji University, Kolhapur.

Physics

1. Bhatnagar, Anuj Swarup. *Laser plasma interaction.* Delhi. Prof. M.P. Srivastava, Department of Physics and Astrophysics, University of Delhi, Delhi.

2. Ganjoo, Ashutosh. *Amorphous semiconductors* Delhi. Dr. K.N. Tripathi, Reader, Department of Electronic Science University of Delhi, Delhi.

3. Jha, Arun Kumar. *Electric field improvements in strong inversion region of short channel mosfets.* Delhi. Dr. R.S. Gupta. Department of Electronic Science, University of Delhi, Delhi.

4. Jha, Ramesh Chandra. *Correlation functions in condensed systems.* Delhi Dr. S.P. Tewari, Department of Physics, University of Delhi, Delhi.

5. Kaushik, Kalpana, *Design and development of microprocessor based data acquisition and control systems.* HS Gour. Dr. H.V. Verma, Reader, Department of Physics, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

6. Mridula. *Signalling in faded channels.* Delhi. Dr. K.N. Tripathi, Reader, and Dr. Ashok De, Department of Electronic Science, University of Delhi, Delhi.

7. Pandey, Satyendra Nath. *Studies of dynamics of nonlinear systems using different theoretical techniques.* Gorakhpur. Dr. S.K Bose, Reader, Department of Physics, University of Gorakhpur, Gorakhpur.

8. Rostamy, Zargham. *Microstrip antenna for millimetric applications.* Delhi. Dr. A.K. Verma, Department of Electronic Science, University of Delhi, Delhi.

9. Sheel, Bibhuti. *Spectroscopic studies of organic compounds.* Delhi. Prof. M.K. Machwe, Department of Physics, University of Delhi, Delhi.

10. Singh, Madan Prasad. *General areas of theoretical physics.* Delhi. Dr V.S. Varma, Department of Physics, University of Delhi, Delhi.

11. Singh, Yashwant Kumar. *High energy hadronic interactions with emulsion nucleus.* Delhi. Prof D.P. Goyal, Department of Physics, University of Delhi, Delhi.

12. Subodh Kumar. *Superconductivity and super fluidity.* Delhi Prof. K.K. Singh, Department of Physics and Astrophysics, University of Delhi, Delhi.

13. Uday Kumar. *Theoretical and experimental study on S & X band corrugated horns.* Delhi. Prof. G.P. Srivastava, Department of Electronic Science, University of Delhi, Delhi.

14. Varma, Neerja. *Some study in nonlinear physics with applications.* Gorakhpur. Dr. S.K. Bose, Department of Physics, University of Gorakhpur, Gorakhpur.

15. Varma, Sandeep. *Analysis and characterization of the depletion mode iopet*. Delhi. Dr. R.S. Gupta, Department of Electronic Science, University of Delhi, Delhi.

16. Verma, Purnima. *Drift instabilities in laboratory and space plasmas*. HS Gour. Dr. M.S. Tiwari, Reader, Department of Physics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

Chemistry

1. Kathuria. Padma. *Thermodynamic and spectroscopic studies of mixed electrolyte solutions*. Delhi. Dr. R.K. Wadi, Department of Chemistry, University of Delhi, Delhi.

2. Khot, A.L. *Study of some manganese (III) complexes*. Shivaji. Dr. S.N. Deshmukh, Department of Chemistry, Shivaji University, Kolhapur.

3. Maikap, Golak Chandra. *Metal ion catalyzed C-C bond formations and their mechanistic investigations*. Delhi. Dr. J.M. Khurana, Department of Chemistry, University of Delhi, Delhi.

4. Tandon, Deepak. *Some novel reductions using nickel-boride and magnesium methanol*. Delhi. Dr. J.M. Khurana, Department of Chemistry, University of Delhi, Delhi.

5. Umadevi, P. *Studies in chemistry of high T.C. (critical temperature) super conductor oxides*. Kerala. Dr. K. Ravindran Nair, Scientist, Regional Research Laboratory, Trivandrum.

6. Unni, I.R. *Synthetic studies in metal carbonyls and related compounds*. Shivaji. Dr. C. Gopinathan, Scientist, Inorganic Division, National Chemical Laboratory, Pune.

Engineering & Technology

1. Semani, Mahesh Chandra. *Deformation process modelling and structure-property correlations of powder metallurgy super alloys* BHU. Dr. E.S. Bhagiradha Rao, Scientist E. Dy. Director, Defence Metallurgical Research Laboratory, Hyderabad and Dr. Vakil Singh, Reader, Department of Metallurgical Engineering, Institute of Technology, Banaras Hindu University, Varanasi.

BIOLOGICAL SCIENCES

Anthropology

1. Nair, Geeta. *A genetic study of the normal and abnormal haemoglobins at family and population level* Delhi. Dr. (Miss) S. Tara Devi, Department of Genetics University of Delhi, Delhi.

Biochemistry

1. Kakkar, Neelam. *Role of polyamines in transcription in mycobacteria*. Delhi. Dr. Anil K. Tyagi.

2. Moonis, Mona. *Liposome research*. Delhi. Prof. B.K. Bachhawat, Department of Biochemistry, University of Delhi, Delhi.

3. Paul, Amla. *Liposome in immunology*. Delhi. Prof. B.K. Bachhawat, Department of Biochemistry, University of Delhi, Delhi.

Botany

1. Ahluwalia, Ritu. *Biochemical and biophysical studies on phosphorylation mediated changes in protein conformation*. Delhi. Prof. U.N. Singh, Department of Biophysics, University of Delhi, Delhi.

2. Chaudhury, Ashok. *Plant biotechnology : Cell tissue culture and genetic engineering studies in rice*. Delhi. Prof. S.C. Maheshwari, and Dr. A.K. Tyagi, Department of Botany, University of Delhi, Delhi.

3. Kanvinde, H.S. *Studies on estuarine ecosystem at Ratnagiri*. Shivaji. Dr. (Smt). L.J. Bhosale, Department of Botany, Shivaji University, Kolhapur.

4. Lal Bahadur. *Effect of boran and* GA_3 *on flowering, fruiting and fruit quality of Aonla cultivars*. BHU. Prof. J.K. Ojha, Department of Dravya Guna, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

5. Sharma, Pankaj. *The role of polyamines in cell and tissue culture of some economically important crop plants*. Delhi. Dr. M. Venkat Rajam

6. Sharma, Vijay Kumar. *Molecular biology of photocontrol of plant development*. Delhi. Prof. S.C. Maheshwari, Department of Botany, University of Delhi, Delhi.

7. Subrahmanya Sastry, Vangala M.V. *Ecological studies of a few medicinally important marine algae*. BHU. Prof J.K. Ojha, Department of Dravya Guna, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

NATIONAL INSTITUTE OF RURAL DEVELOPMENT

NIRD requires **DIRECTORS** for the following faculties:

Total Annual Emoluments:
Rs. 77 — 114 Thousands.
Pension/CPF and health facilities additional.

1. Director (Economics)
2. Director (Women Studies)
3. Director (SIRD Cell)
4. Director (Centre for Micro Planning)
5. Director (Monitoring & Evaluation)
6. Director (Centre for Agrarian Studies)
7. Director (NIRD North Eastern Regional Centre, Guwahati, Assam)

Qualifications:
Minimum qualifications sought are First or High Second Class Master's Degree with Ph D. in the relevant discipline. 10 years experience in Research & Training, handling large scale Research Projects and Publication of books/papers.

Deputation from Govt. Departments/ Organisations/ Universities and other Institutions will be considered.

Desirous persons may seek full details regarding qualifications, service conditions and application forms from the REGISTRAR on payment of Postal Order of Rs. 5/-. Application with documents should reach Registrar, NIRD, **by 31.01.1989.**

Rajendranagar, Hyderabad-500 030.

ASP:NIRD 88150

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. **Bharathi, K.** *Quaternion function theory and applications.* Bangalore. Dr. M. Nagaraj, Prof., Department of Mathematics, Central College, Bangalore.
2. **Mishra, Binod Kumar.** *On some special types of linear operators.* Magadh
3. **Mohammad Ilyas.** *Some contributions to the theory of commutators of operators.* Magadh.
4. **Ramamoorthi, P.** *On some analogues of perfect and harmonic numbers.* Venkateswara. Prof. V.V. Subramanya Sastry, Department of Mathematics, Sri Venkateswara University College, Tirupati.
5. **Singh, Paras Nath** *Some contributions to continuous flow in topological dynamics.* Magadh.
6. **Singh, Saket Bihari.** *Some fixed point theorems in topological vector spaces.* Magadh.

Statistics

1. Anandarajachari, A *A markovian approach to system reliability and availability measures with common-cause failures.* Venkateswara. Prof. M.P. Sastry, Department of Statistics, Sri Venkateswara University College, Tirupati.
2. Sahariah, Bhubaneswar. *Interregional population interaction in Assam : A demagraphic appraisal.* Gauhati. Dr. A. Barthakur, Prof., Department of Statistics, Gauhati University, Gauhati.
3. Vivekananda Murty, Mushini. *A dynamic approach for a critical assessment of strategic manpower planning.* Andhra.

Physics

1. Chaubey, U.S. *Studies in evolution of close binary stars.* Kumaun Dr. C.D. Kandapal, UPSO, Nainital.
2. Fuloria, R.B.S. *Relativistic configuration in astrophysics.* Kumaun. Dr. M.C. Durgapa.
3. Katiyar, Arun Kumar. *Electron (positron) excitation of hydrogen, helium and the ions of their isoelectronic sequences.* Roorkee
4. Pant, Pitamber. *Some studies related to solar flares and prominences.* Kumaun Dr. M.C. Pandey.
5. **Satya Raj Kumar.** *Quaterminonic formalism and non-abeliam gauge theory of fields associated with dyons.* Kumaun. Dr. B.S. Rajput.
6. **Sayanna, R.** *The study of defects in some Mn^{2+} doped alkali halide crystal.* Osmania.
7. **Sinha, Rajendra Prasad.** *The study of electronic spectra and structure of simple molecules (Molecular orbital method) : Alkenes, carboxylic ... and amides.* Magadh.
8. **Sivakumar, K.** *Structural studies on compounds of biological interest.* Anna.
9. **Upadhyaya, R.P.** *Study of fields associated with monopoles.* Kumaun. Dr. B.S. Rajput.
10. **Verma, V.K.** *Some studies of solar flares, surges and related phenomena.* Kumaun. Dr. M.C. Pandey.

Chemistry

1. Bisht, J.C. *Terpenoid composition of some high altituae flora.* Kumaun. Dr. C.S. Mathela.
2. Bisht, R.S. *Chemical examination of certain less known medicinal plants of Kumaun.* Kumaun. Dr. K.S. Khetwa.
3. Changani V.S. *Studies on some transition metal complexes.* Saurashtra. Dr. G.K. Joshi, Reader, Department of Chemistry, Saurashtra University, Rajkot.
4. Das Gupta, Manash. *Kinetics of reduction of transition metal ions by sodium tetrahydroborate.* NEHU. Prof. M.K. Mahanti, Department of Chemistry, North Eastern Hill University, Shillong.
5. Deopuzari, Sushma W. *Studies on evolution of iron and zinc containing enzymes.* Roorkee.
6. Dhami, K.S. *Chemical investigation of some fodder grasses of Kumaun and their nutritive value.* Kumaun. Dr. H.D. Pathak.
7. Gupta, Daya Shanker. *Trace analysis of certain substances including pollutants in water and air.* Durgawati. Dr K.K. Verma, Reader, Department of Chemistry, Rani Durgawati Vishwavidyalaya, Jabalpur.
8. Jain, Praveen. *Physico-chemical investigation of proteins and amino acids of some Indian plant seeds.* Bhopal. Dr. R.M. Shrivastava, Prof., Department of Chemistry Bhopal University, Bhopal.
9. Jha, Madan Mohan. *Studies on compounds of chromium and iron systems.* Magadh.
10. Lawrence, N. *Lattice dynamical investigation to hydrogen in metals in relation to their application in energy storage.* Madurai.
11. Malik, Mritunjaya. *Development and characterization of newer carbon products.* Panjab.
12. Manral, Krishan. *Chemical investigation of certain medicinal plants of Pindari Glacier.* Kumaun. Dr. K.S. Khatwal.
13. Mishra, Brindaban. *Lead and copper substitution in the calcium hydroxylapatites.* Sambalpur. Dr. P.N. Patel, Department of Chemistry, G.M. College, Sambalpur.
14. Munishwar Kumar. *Studies on metal complexes of substituted 1, 2, 4-triazoles* Magadh.
15. Narasimha Reddy, T. *Studies in electrode processes involving some pesticides.* Venkateswara. Prof. S. Jayarama Reddy, Department of Chemistry, Sri Venkateswara University, College of Engineering, Tirupati.
16. Nehete, Dilip Tolu. *The chemistry of transition metalnitrosyls and metal-thionitrosyls.* Devi Ahilya. Dr. K.K. Pandey, Department of Chemistry, Devi Ahilya Vishwavidyalaya, Indore.
17. Paneerselvam, N. *Investigations on the environmental chemicals (studies on the monitoring of pesticide genotoxicity in the barley test system).* Madurai.
18. Poorna Chandra Rao, Kolli. *Thermodynamic and physical properties of binary liquid mixtures.* Venkateswara. Dr. K. Subramanyam Reddy, Department of Chemistry, Sri Venkateswara University, Tirupati.

19. Pradhan, Manisha. *Milligram determination of a few organic compounds*. Magadh.

20. Ramanjaneyulu, K. *Physico-chemical properties of binary non electrolyte solutions*. Venkateswara. Dr. A. Krishnaiah, Department of Chemistry, Sri Venkateswara University College of Engineering, Tirupati.

21. Ray, Sumita. *Studies on lipids*. Calcutta.

22. Reddy, D. Meghanath. *Investigation of C_7H_8N+, $C_{12}H_{11}N+$ and $C_{12}H_{10}S+$ ion structures by mass spectrometry*. Osmania.

23. Sankaraiah, Uppu. *Azine and oxazine dyes as redox and adsorption indicators*. Andhra.

24. Sarkar, Bibekranjan. *Studies on antiamebic agents*. Calcutta.

25. Sarmn, Kula Nath. *Kinetic studies on the aminolysis of some O-aryl oxime*. Roorkee.

26. Satyanarayana, Mushini. *Kinetic and mechanistic studies of some oxidation reactions of iron (III) in the presence of terpyridine and TPTZ*. Andhra.

27. Shrivastava, Mamta. *Medicinal and physicochemical study of some Indian vegetable oils*. Bhopal. Dr. R.M. Shrivastava, Prof., Department of Chemistry, M.V. Mahavidyalaya, Bhopal.

28. Singh, Langonjam Koanhai. *Thermal investigation and stereochemical studies of some cyclic diamine complexes of nickel (II), zinc (II) and cadmium (II) in the solid state*. Manipur. Dr. S. Mitra, Assoc Prof., Department of Chemistry, Manipur University, Imphal.

29. Sinha, Anuj Kumar. *Studies on microbial production of citric acid*. Magadh.

30. Siva Sankar, P. *Studies in electrode processes involving some drugs and pharmaceuticals*. Venkateswara. Prof. S. Jayarami Reddy, Department of Chemistry, Sri Venkateswara University College of Engineering, Tirupati.

31. Srinivasan, K.N. *Studies on the influence of addition agents in electroplating solutions with special reference to zinc plating baths*. Madurai.

32. Verinder Kaur. *Investigations towards the synthesis of B-lactams*. Panjab.

33. Vijayalakshmi, K. *Polarography of organic compounds with special reference to some thio and nitro compounds*. Venkateswara. Prof. K. Saraswathi, Principal, S.P.W. Mahila University College, Tirupati.

Earth Sciences

1. Bhowmik, Ashok Kumar. *Study of some teak forests of Madhya Pradesh in relation to soil with special reference to trap rocks*. Durgawati. Dr. P.S Agarkar, Head, Department of Geology, Government Science College, Jabalpur and Dr. N.G. Totey, S.D.O. Forest Soil, Vegetation Survey, F.R.I. and College, D.D., Jabalpur.

2. Chalapathi Rao, K. *Hydrology of the Kaundinya River Basin, Chittoor District, Andhra Pradesh, India*. Venkateswara. Dr. G.V.S Rama Rao, Department of Applied Geology, Sri Venkateswara University College, P.G. Centre, Cuddapah.

3. Madhusudhana Rao, Malisetti. *Land and water resources of Rayachoti Taluk, Cuddapah District, Andhra Pradesh, India*. Venkateswara. Dr. K.V.R. Charl, Department of Applied Geology, Sri Venkateswara University P.G. Centre, Cuddapah.

4. Radhakrishna, S. *Study of the geology and mineralization aspects of rocks: Kalar Gold Field Region with emphasis on Chigargunta Gold occurrences*. Venkateswara. Dr. P.T. Nayudu, Department of Geology, Sri Venkateswara University, Tirupati.

5. Sehgal, Uma. *Petrology and geochemistry of Rampura-Agucha massive sulfide deposit, Bhilwara District, Rajasthan*. Delhi

Engineering & Technology

1. Ashwani Kumar. *Micro-earthquakes-recording and study of their parameters for selected regions*. Roorkee.

2. Gopal Krishan. *Convective droplet vaporization with transient liquidphase heating in the absence of liquidphase motion*. Roorkee.

3. Humar, Swarajyamal. *Critical evaluation of foundation practices in black cotton soils towards economy in design*. Devi Ahilya.

4. Mishra, P.K. *Simulation studies of flexible manufacturing system*. Roorkee.

5. Mohibullah. *Force commutated inverters for conversion and control of MHD power*. Aligarh. Prof. K.P. Basu, Department of Electrical Engineering, Aligarh Muslim University, Aligarh.

CLASSIFIED ADVERTISEMENTS

NATIONAL GEOPHYSICAL RESEARCH INSTITUTE

(COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH)

Uppal Road, Hyderabad-500 007

Advertisement No. 2/88

Applications for appointment in the following posts in the Institute, are invited :

Abbreviations :

MQ : Minimum qualifications.
FE : Field of experience.
JR : Job requirements.

1. Scientist EI/Scientist EII.

Scales of Pay: Rs. 3700-125-4700-150-5000/4500-150-5700.

No. of Posts : One.

This is a position of leadership which will require ability to formulate, plan, guide and execute innovative programmes of basic and applied significance in Modern Geology. This Institute is well equipped to conduct research to contemporary standards and pursues a wide spectrum of topical problems through mineralogical, chemical and isotopic studies on carefully chosen areas and topics. Appropriate modern facilities like XRF, Electron Probe, Plasma Source Mass Spectrometer, and Mass Spectrometer for radiogenic/stable isotopes are available.

MQ : First Class M.Sc. with 12 years of experience.

OR

Ph.D. with about 10 years of R&D experience.

Subject : Geology.

FE : R&D experience in Precambrian Geology, especially on Precambrian volcanosedimentry processes, stratigraphy, palaeobiology and crustal evolution.

JR : Candidate will complement and collaborate with ongoing research programs at the Institute on the evolution of the earth's crust and mantle in the broadest sense.

2. Scientist B Grade IV(1)/Scientist C Grade IV(2)

Scales of Pay : Rs. 2200-75-2800-EB-100-4000/Rs. 3000-100-3500-125-4500.

No of Posts : Twenty.

MQ : for Scientist IV(1) First Class M.Sc./First Class B.E., or First Class B Tech., or M. Tech/M.E./Ph.D. (Science).

For Scientist IV(2) : First Class M.Sc. or First Class B.E., or First Class B.Tech., with six years of experience; or M.E./M.Tech with four years of experience; or Ph.D. (Science) with two years of experience; or Ph.D. (Engg.).

For Post 2 (i)

Subject : Geophysics/Physics.

FE : Research experience in electromagnetic exploration/ magnetotellurics, as evidenced, e.g., by publications in reputed journals.

JR : Study of electrical structure of lithosphere through magnetotelluric measurements. The work would involve all aspects of magnetotelluric exploration including field data acquisition, computer data processing and interpretation.

For Post 2(ii) & (iii)

Subject : Geology/Physics.

FE : Research experience in experimental petrology geo-chemistry or isotope geology as evidenced, e.g., by publications in reputed journals.

JR : Petrogenetic, geochemical and geochronological studies using modern isotopic techniques. The work would require experimental competence and flair for instrumentation.

For Post 2(iv) : Reserved for ST, but general candidates may also apply for consideration, if suitable SC/ST candidates are not available).

Subject : Geophysics/Physics/Applied Mathematics.

FE : Research experience in geophysical signal processing as evidenced, e.g., by publications in reputed journals.

JR : Data inversion, signal processing and numerical modelling of geological/geophysical data series.

For Post 2(v)

Subject : Physics/Applied Physics/Geophysics

FE : Research experience in airborne/statellite geophysical surveys and interpretation as evidenced, e.g., by publications in reputed journals.

JR : Correlation, analysis and interpretation of MAGSAT and satellite data.

For Post 2(vi)

Subject : Geology/Geophysics.

FE : Field experience in groundwater exploration.

JR : Evaluation, management and augmentation of groundwater resources. The work include field and laboratory measurements of various geohydrological parameters.

For Post 2(vii)

Subject : Geophysics/Instrumentation/Physics. Candidates with Second Class in M.Sc. and adequate experience may also apply for this post.

FE : Operation and maintenance of seismological observatory including analysis of seismograms.

JR : Organizing and operation of a local seismological network of stations in North-East India. The incumbent will be posted in the North-Eastern region of India.

For Post 2(viii) : (Reserved for SC, but general candidates may also apply for consideration, if suitable SC/ST candidates are not available).

Subject : Physics/Communication Engg./Geophysics.

FE : Signal processing and pattern recognition.

JR : Study of the physics of rock failure processes. The work would involve processing of acoustic emission signals from rock masses fracturing under stress.

For Post 2(ix)

Subject : Geology/Geophysics.

FE : Research experience in hydrogeology including the use of tracers.

JR : Study of flow of groundwater using tracers. The work would include collection and processing of hydrological/hydrochemical data and development of related computer software.

For Post 2(x)

Subject : Geophysics/Applied Mathematics/Statistics.

FE : Marine Geophysical surveys.

JR : Study of the physical structure of the oceanic lithosphere. The work would involve acquisition of marine geophysical data and interpretation.

For Post 2(xi)

Subject : Geophysics/Physics.

FE : Research experience in development of computer software for geophysical interpretation.

JR : Research in the field of airborne geophysics. The work would involve airborne data acquisition and development of software for processing and interpretation of airborne geophysical data.

For Posts 2(xii) & 2(xiii) : One of the two posts Reserved for SC; but General candidates may also apply for consideration, if suitable SC/ST candidates are not available).

Subject : Computer Science/Electronic Engineering.

FE : Experience in development/maintenance of application/systems software in a multiprogramming environment, preferably on a main frame system.

JR : Operation of a main frame computer centre, comprising CDC Cyber computer system, development/maintenance of application/systems software. The operation will involve duties in shifts.

For Posts 2(xiv) & 2(xv)

Subject : Geophysics/Physics / Applied Mathematics.

FE : Research experience in numerical modelling as evidenced, e.g., by publications in reputed journals.

JR : Study of the thermomechanical structure and evolution of the earth. The work would mainly involve the numerical modelling of the geomechanical processes.

For Post 2(xvi)

Subject : Geophysics / Physics with Electronics/Electronics.

FE : Operation, repair and maintenance of digital electronic instruments, preferably of seismic recording instruments.

JR : Repair, maintenance and field operation of digital seismic systems and acquisition of field seismic data

For Post 2(xvii)

Subject : Physics/Mathematics/Computer Science / Electrical/Communication Engineering.

FE : Geodetic Computation and data processing or Astronomical Radio Interferometry or signal processing for enhancement of (signal/noise ration and detection of signal buried in noise.

JR : Correlation processing of radio interferometric data, Geodetic computations using astronomical data and estimation of relative movement between different stations by using Very Long Baseline Interferometry (VLBI).

For Post 2(xviii)

Subject : Computer Science/Electronic Engineering.

FE : Development and use of system utilities and software libraries in a Computer system.

JR : Supporting the Management of System Software facilities of a mainframe computer and development of special purpose system software facilities.

For Post 2(xix)

Subject : Electrical Engineering

FE : Operation of Electrical Power Supply and Support system involving generators. Uninterruptible power supply, airconditioners, etc.

JR : Maintenance and monitoring of an electrical support system for continuous, uninterrupted operation of a mainframe computer system and interaction with operation and maintenance personnel.

For Post 2(xx)

Subject : Electronics/Communication Engg /Computer Science.

FE : Work with digital data acquisition system, Radio Telemetry and/or digital Seismological observatory apparatus and experience of independently running and maintaining such systems.

JR : Running and maintenance of digital seismic telemetry system. Posting will normally be at Seismic Field Stations away from Headquarters.

3. Technical Assistant, Grade III(2).

Scale of Pay : Rs. 1640-60-2600-EB-75-2900.

No. of Posts : Six

MQ : B.Sc. (Science), or Diploma in Engineering/Technology of three years duration, or equivalent, plus 3-5 years relevant experience.

OR

M.Sc./B.E./B.Tech or equivalent.

For Post 3(i) : (Reserved for S.T.)

Subject : Physics/Instrumentation/Geophysics.

FE : Operation and maintenance of seismological observatory.

JR : Operation and maintenance of a seismological observatory. The incumbent will be posted in North-Eastern region of India.

For Post 3(ii)

Subject : *Electrical* / Refrigeration/Airconditioning.

FE : Repair and maintenance of refrigerators/airconditioners, diesel generators and/or water pumps.

JR : *Repair and maintenance of* refrigeration and airconditioning systems of the Institute/high power diesel generators/heavy duty water pumps.

For Post 3(iii)

Subject : Chemistry.

FE : Chemical analysis of rocks and computer processing of data.

JR : To carry out conventional and instrumental chemical analysis and computer processing of geological/geochemical data.

For Post 3(iv) & (v) : (Reserved : One for SC and one for ST, but as this is 2nd Advt., General Candidates may apply for consideration, if suitable SC/ST candidates are not available).

Subject : Electrical.

FE : Operation of uninterrupted power supply, generators, air conditioners, etc.

JR : Assisting in proper operation and Maintenance of electrical support system for a computer centre.

For Post 3 (vi) : (Reserved for SC, but as this is 2nd Advt. General Candidates may also apply for consideration, if suitable SC/ST candidates are not available).

Subject : Physics/Geophysics/Mathematics/Geology.

FE : Processing and Interpretation of seismic data.

JR : Participation in field work for Deep Seismic Sounding Studies in different parts of the country, Computer Aided processing and interpretation of DSS data.

4. Technical Assistant, Grade III (1)

Scale of Pay : Rs 1400-40-1800-EB-50-2300.

No of Posts : Twelve.

MQ : B Sc. (Science) or Diploma in Engg/Technology of *three years duration*, or equivalent.

For Post 4 (i)

Subject : Physics/Electronics/Instrumentation.

Desirable experience : Experience in computerised data handling.

JR : The work would involve magnetotelluric field surveys and data processing. The field work may be in remote areas.

For Post 4 (ii), 4 (iii), 4 (iv) & 4 (v) : (One of the four posts Reserved for SC).

Subject : Physics/Electronics/Instrumentation.

Desirable experience : Handling seismic instruments.

JR : To assist in the installation, operation and *maintenance of the* seismic instruments in the different parts of the country. Posting will be in remote areas like North-Eastern region of India.

For Post 4 (vi)

Subject : Physics/Mathematics/Electronics.

Desirable experience : *Geophysical* data acquisition in the field.

JR : To assist in operation of field geophysical instruments such as field seismic units, resistivity meters, magnetometers, etc.

For Post 4 (vii)

Subject : Physics/Mathematics/Electronics.

Desirable experience : Geophysical map compilation and interpretation.

JR : To assist in the airborne geophysical surveys. The work would involve inflight data acquisition and computerised data processing

For Post 4 (viii) : (Rserved for S.T.) :

Subject : Chemistry/Geology/Physics.

Desirable experience : Chemical analysis of groundwater.

JR : Analysis of water samples both in the field and laboratory.

For Posts 4 (ix) & 4 (x)

Subject : Physics/Mathematics.

Desirable experience : Computerised data handling.

JR : To assist in marine geophysical data acquisition and interpretation.

For Post 4 (xi) : (Reserved for ST but as this is a repeated Advertisement, General Candidates may also apply, for consideration, if suitable SC/ST candidates are not available).

Subject : Mathematics/*Physics*.

JR : Assistance in running the geomagnetic observatory of N.G.R.I., preparation of records and computer processing of data.

For Post 4 (xii) : (Reserved for ST, but as this is second Advt., General candidates may also apply for consideration, if suitable SC/ST candidates are not available).

Subject : Physics/Mathematics/*Instrumentation*.

JR : Running and maintenance of a field seismological network of stations. Reading of seismograms.

GENERAL CONDITIONS

1. The number of posts are tentative and are subject to variation, depending on the number of vacancies at the time of selection.
2. The appointments to the posts of Technical Assistant (Gr. III) (2) and Technical Assistant (Gr. III) (1) will be on pensionable temporary service and likely to continue.
3. The appoinments to the posts of Scientist 'EII'/Scientist 'EI' and Scientist 'C'/Scientist 'B' will be on contract for a period of six

years (including probation of two years), in the first instance, except for C.S.I.R. Employees already permanent in lower posts.

4. The posts carry allowances as admissible to the Central Government employees. The total emoluments at the minimum of the pay scales are as presently as under.

	Pay Scale	Total Emoluments
(i)	Rs. 4500-5700	Rs. 6,405-00
(ii)	Rs. 3700-5000	Rs. 5,405-00
(iii)	Rs. 3000-4500	Rs. 4,390-00
(vi)	Rs. 2200-4000	Rs. 3,256-00
(v)	Rs. 1640-2900	Rs. 2,567-00
(vi)	Rs. 1400-2300	Rs. 2,017-00

5. Candidates with Engineering qualifications, are liable to serve, if so required, in any Defence Service or post connected with the Defence of India for a period of not less than four years, including the period spent on training, if any, provided that such persons *(a) shall not* be required to serve on the above said post after the expiry of ten years from the date of appointment; and (b) shall not be ordinarily required to serve as aforesaid after attaining the age of forty five years.

6. Application forms may be obtained from the Institute's address given above, by sending a requisition, along with a self-addressed stamped envelope (23 x 10 cm) affixed with postal stamps of Rs. 1-50 ps on or before 26-12-1988.

7. Application for each post should be separate, even if the posts applied for are from the same category or with the same qualifications, indicating clearly the Advertisement Number, complete serial number of the post (including the sub-serial number). In case of failure to comply with this condition, the application is liable to be considered as invalid.

8. Applications duly completed (supported by attested copies of Degress/Diplomas and statements of marks of educational qualifications, experience certificates, Community Certificates (in the case of SC/ST Candidates), along with application fee (Non-refundable) of Rs. 8/- (Rupees Eight only) in the form of Crossed Indian Postal Order drawn in favour of the Director, National Geophysical Research Institute, Hyderabad, should be sent so as to reach him on or before **16th January, 1989.** The Candidates of S.C. or S.T. Communities are exempt from payment of application fee.

9. Applications from employees of Government Departments/Public Sector Organisations/Government Funded Research Agencies will be considered only if forwarded through the proper channel, certified by the Employer that the applicant will be relieved within one month of the receipt of the appointment orders, if selected.

10. Applications incomplete in any manner, are liable to be considered as invalid.

11. Candidates claiming to be of S.C./S.T. Communities, should invariably enclose an attested copy of *Caste Certificate* issued by the Competent authority, along with their application, failing which the candidate will not be entitled to the concessions otherwise admissible to them.

12. Applications received after the last date viz. 16-1-1989, will not be considered.

13. Mere fulfilling of the minimum eligibility will not entitle the candidate to a call for interview.

14. A lower standard of suitability consistent with efficiency will be applied in respect of SC/ST Candidates.

15. A candidate applying for a post may be considered for a post carrying lower scale of pay, if he is not suitable for the post for which he has applied.

16. Higher start of pay may be considered in case of exceptionally meritorious candidates.

17. Candidates selected for interview will be paid single Second Class to and fro rail fare (by shortest route) from the actual place of undertaking the journey or the place of address for correspondence in the application, whichever is nearer to Secunderabad Railway Station, on production of relevant documents of travel.

18. Canvassing in any form and/or bringing of any influence, political or otherwise, will be treated as a disqualification for the post.

19. Interim Enquiries will not be Entertained.

K.R. Sarma
Controller of Administration

NEHRU MEMORIAL MUSEUM AND LIBRARY

Fellowships in Perspective in Indian Development

Applications are invited from Social Scientists for the award of Fellowships for conducting research on the themes (1) Tribal Development (2) Changing Status of Women in Society, (3) Social Identities and Integration of the Indian Nation, (4) Linguistic and Political Loyalties, (5) Roots of Communalism in Indian Society; and (6) Problems of Indian Ecology.

Fellowships are in the range of Rs. 4500-7300 & Rs. 3700-5700 and carry allowances at Central Government rates plus contingency grant of Rs. 7,500 p.a. Fellowships are for two years renewable for another year.

The Nehru Memorial Museum and Libray reserves the right of publication of research papers and monographs prepared by Fellows during the tenure of their fellowships. The Fellows will be based in Delhi. The Selection Committee would have the right to recommend award of fellowships to scholars who may not have applied.

Those who wish to be considered should send a note, not exceeding 1,000 words, on the project proposed to be undertaken along with the following Information to Director, Nehru Memorial Museum and Library, Teen Murti House, New Delhi-110 011, latest by **31st January, 1989** (i) Name (ii) Address (iii) Date of birth (iv) Academic record (v) Details of post-graduate work and list of publications with copies (vi) Details of how employed so far, and (vii) Names and address of two referees. Candidates in employment should apply through proper channel. Those who had already applied in response to our earlier advertisement need not apply. Their applications will also be considered along with the fresh applicants.

davp 88/585

Institute of Engineering & Technology

SITAPUR ROAD, LUCKNOW-226 020

Advertisement No. 4/88

Applications are invited from Citizens of India for the following positions at this Institute in the prescribed forms obtainable free of charge from the Deputy Registrar of the Institute on request accompanied by a self addressed stamped (Rs. 1.80) envelope (25 x 10 cms.)

Sl. No.	Name of the Post	No. of Post	Scale (pre-revised)	Qualifications & Experience
1.	System Manager/System Engineer (Software)	1	Rs. 1250-2050	Master's Degree in Computer Science with specialization in software engineering with relevant experience. Or
2.				M.Sc. Physics with Electronics telecommunication (specialization) and one year experience in software development at organization/institution where adequate computer facilities in running conditions are available.
3.	Programmers	2	Rs. 850-1720	Master's Degree in Computer Science/PGDCA with 7 years experience on Computer.
4.	Computer Operator	2	Rs. 570-1100	B.Sc. with Maths, Physics and good knowledge of computer operations. Or Diploma in Electronics and good knowledge of operating the Computer System.
5.	Accountant	1	Rs. 570-1100	DTE or M. Com. (B. Com. in Accountancy)
6.	Asstt. Accountant	1	Rs. 470-735	B.Com. with Accountancy.
7.	Mechanic Grade 'A'	6	Rs. 470-735	High School, Diploma Certificate and 2/5 years experience in different workshop trades.
8.	Cataloguer/Lib. Assistant	2	Rs. 400-615	Certificate in Library Science and some experience in cataloguing.
9.	Lady Matron (for girls hostel)	1	Rs. 400-615	Intermediate + 5 years experience.
10.	Junior Noter Drafter	1	Rs. 400-615	Intermediate + 5 years experience.
11.	Accounts Clerk	2	Rs. 400-615	Intermediate with Commerce + 5 years experience.
12.	Punch Operator	2	Rs. 354 550	Intermediate and training in key punching.
13.	Lab. Assistant	5	Rs. 354-550	Intermediate Science + 2 years experience
14.	Mechanic Grade 'B'	3	Rs. 354-550	*ITI Certificate* and 2 years experience.
15.	Store purchase Assistant	1	Rs. 354-550	Intermediate + 5 years experience.
16.	Junior Accounts Clerk	2	Rs. 354-550	Intermediate Commerce.
17.	Routine Grade Clerk/Typist	3	Rs. 354-550	Intermediate with minimum speed of *30 in English typing and 25 in Hindi.*
18.	Library Clerk	1	Rs. 354-550	Intermediate

Preference will be given to higher qualification and relevant experience.

Posts carry allowances and other benefits as approved by the U.P. State Government from time to time. Depending on qualifications and experience a higher start may be offered.

Number of posts can be increased; decreased or withdrawn at the discretion of the Institute Authority.

Applications on prescribed form should reach the Director, Institute of Engineering and Technology, Lucknow-226 020 by 5 p.m. on **January 9, 1989.**

Anil Kumar Saxena
DEPUTY REGISTRAR

Central Institute of Hindi

HINDI SANSTHAN MARG,

ARGA-282005

Adv. No.4/88-89

Applications are invited from Indian citizens for the post of Registrar in the Pay Scale of Rs. 3700-125-4700-EB-150-5000.

Qualifications

Essential

(a) First or high second class Master's degree or equivalent qualification. (b) Hindi at least upto the Bachelor's level for those who have not possessing a Master's degree in Hindi. (c) Experience of at least four years in an administrative capacity in an educational institution organisation dealing with education administration and planning. (d) Ability to take organisational charge of meetings and administrative affairs of an educational institution Organisation (e) Very good knowledge and ability in preparation of Agenda and Minutes of meetings of important bodies.

Desirable

(a) Skill in drafting, appreciation of finance & accounts problems and some aptitude for public relations, some interest in the intellectual processes of the educational institutions/organisation and its development. (b) Degree in law/degree or diploma in public administration.

Eligibility

Officers holding analogous posts or with 5 years service in posts in the scale of pay of Rs. 3000-4500 or equivalent in the Central/State Govt./Universities/Educational Institutes.

Note : Relaxation of any of the qualifications may be made in exceptional cases in favour of persons of high academic or professional distinction.

Age : Not below 35 years.

APPLICATION FORM

(1) Post Applied for (2) Name (In Block Letters) (3) Father/Husband's Name (4) Present Postal Address with Pin Code (In Block Letters) and Telegraphic Address (5) Date of Birth (6) Date of Superannuation from present service (7) Whether belonging to SC/ST (8) Educational Qualifications :

Sl. No.	Examination Passed	Name of Board/University	Year	Total Marks and Percentage	Division	Subjects Offered

(9) Posts held in last 10 years beginning from the present post & mentioning duration for which post held & nature of duties performed (use seperate sheets) :

Sl. No.	Name of Office	Post held & Scale of Pay	Period		Nature of work handled
			From	To	

(10) Nature of post held (whether Permanent/Quasi-Permanent/Temporary/Adhoc/Regular (11) Scale of Pay and present basic pay & gross emoluments. (12) Name/Particulars of the Employer clearly indicating Name/Designation of the relieving Controlling Authority. (13) Details of Training of Administrative and Financial Rules and procedures, etc. if any (with full particulars) (14) Any other relevant information.

Remarks of the Forwarding Officer

Signature of the Applicant

Terms and Conditions

1— Pay and allowances as Sanctioned by the Central Government and approved by the Mandal from time to time.
2— Age of retirement is 58 years.
3— Candidates must enclose copies of their testimonial with applications.
4— Applications must reach the Director, Kendriya Hindi Sansthan, Agra-282005 through proper channel on or before 31.1.89.

F. No. 2-133/88-89

PUNJABI UNIVERSITY

PATIALA

Advt. No. 57/PRO/RECT

Applications are invited for the following posts so as to reach the Assistant Registrar (Estt.) on or before 6-1-1989.

1. **Professors** : One each in Mahavira Chair for Jaina Studies in G.G.S. Deptt. of Religious Studies, English for University Regional Centre Bhatinda, Business Management for Guru Kashi Institute of Advanced Studies, Damdama Sahib and Deptt. of Computer Science & Application.

Grade : Rs. 4500-150-5700-200-7300 (UGC).

Specializations

English : Commonwealth Literature/Modern British/American Literature.

Computer Science & Application : Computer Application/Computer Science.

Guru Kashi Inst. of Adv. Studies : Strategic Management/Marketing Management.

2. **Readers** : Two each for Deptt. of Economics, Business Management for Guru Kashi Institute of Advanced Studies and one in Human Biology.

Grade : Rs. 3700-125-4950-150-5700 (UGC).

Specializations

Economics : Money & Banking OR Transport Economics OR Economic Thought.

Guru Kashi Inst of Adv. Studies : 1. Finance and Banking 2. Quantitative Techniques/Enterpreneurship.
Human Biology : Anatomy/Physiology.

Note : Candidates should hold M.Sc. and Ph.D. degrees in Anatomy/Physiology with 5 years postgraduate teaching experience as Lecturer and should be able to teach both Anatomy and Physiology at postgraduate level.

3. **Lecturers** : Two in the Deptt. of Economics, two in Business Management for Guru Kashi Inst. of Advanced Studies and one each in Political Science, Zoology, Economics (Correspondence Courses) and one in Economics for Regional Centre, Bhatinda.

Grade : Rs. 2200-75-2800-100-4000 (UGC).

Specializations

Deptt. of Economics : Macroeconomics or Economic History or Monetary Economics.

Guru Kashi Inst. of Adv. Studies : Production Management / Personnel Management / Financial Management/ Marketing Management.

Zoology : Cell Biology.

Economics (CC) : Political Economy or Quantitative Methods in Economics or Agricultural Economics.

Economics (R.C. Bhatinda) : Indian Economy or Regional Economics.

NOTE

1. The Vice-Chancellor could also place before the Selection Committee names of suitable persons for the post of Professor.
2. It is not obligatory to call for Interview every candidate who possesses the essential qualifications.
3. The number of vacancies may change.
4. Candidates must possess working knowledge of Punjabi.
5. The Selection Committee might relax the qualifications/experience in exceptional cases.
6. Details of qualifications, specializations, etc., will be supplied alongwith the application forms.

Application Forms can be obtained from the Head of the University Publication Bureau, on payment of Rs. 5.00 at the Counter OR by sending IPO for Rs. 5.00 in favour of the Registrar, alongwith a self-addressed envelope (25 × 10 cms.) with postage worth Rs. 5.50, superscribing on it Application *for the Post of———*

REGISTRAR

NATIONAL GEOPHYSICAL RESEARCH INSTITUTE

(Council of Scientific and Industrial Research)

HYDERABAD-500 007

CORRIGENDUM TO ADVERTISEMENT NO. 2/88

I. Under Sl. No. 2, read Number of Posts as 24 instead of 20.

II. Under Sl. No. 2 against Post No. 2 (xvi) add the following :

***No. of Posts* : Two**

***III. For Post 2 (xvii), the following may be substituted* :**

Subject : Microwave Engineering/ Electronics/Physics.

F.R. : Microwave Communication Engineering, Ultra Stable time standards, serve control of steerable antennas.

J.R. : Proper acquisition of Very Long Baseline Radio Interferometry data, Calibration of system, etc.

IV. Add the following as 2 (xxi)

Subject : Industrial Electronics/ Communication Engg.

F.E. : *Highpower Solid State Control Electronics.*

J.R. : Design and construction of a high power—(100 KW) solid state device for injecting switched current into the ground, field operation, testing and maintenance of geophysical instruments.

V. Add the following as 2 (xxii) & 2 (xxiii)

Subject : Physics/Electronics Engineering/Communication Engineering.

F.E. : Use of modern digital seismic data acquisition systems and signal processing, borehole geophysical logging system, ocean bottom profiling equipment, ground probing radar, airborne geophysics or other geophysical systems of comparable complexity.

J.R. : Acquisition of Geophysical signals with Modern Systems as well as Machine editing/storage/transfer and processing of such signals. Job will include field operation and maintenance of instruments and devices used.

VI. Candidates fulfilling the following requirements are also eligible to apply for posts No. 2 (xii), 2 (xiii) or 2 (xviii)

Subject : Computer Science/Communication Engineering/Electronics/ Instrumentation.

F.E. : Operation and maintenance of (i) mainframe computer circuits as well as magnetic disk/tape/casette units and/or (ii) Computer network, computer workstations and computer peripherals such as Video/graphic terminals, line printers, electrostatic printer/plotters, digitizers.

J.R. : To assist in carrying out the preventive/periodic/routine maintenance work of a *mainframe computer* system; interaction with the users as well as system software and operation personnel.

VII. The last dates will be as under :

Receipt of requests for application : **6-1-1989.**

Receipt of completed applications : **23-1-1989.**

K.R. Sarma
Controller of Administration

UNIVERSITY OF DELHI

DEPARTMENT OF COMPUTER SCIENCE

ADMISSION NOTIFICATION FOR 'MASTER OF COMPUTER APPLICATIONS'—1989

Applications are invited, on all India basis, for admission to the 3-year Degree Course in Master of Computer Applications (MCA) for the session starting from July 10, 1989 in the Department.

A request for the Eligibility Conditions and the prescribed Application Form for the M.C.A. Admission Test, fixed for SUNDAY, FEBRUARY 19, 1989 and to be conducted only at Delhi University, Delhi, be addressed to Shri K.S. Krishna, Senior Assistant (In-charge), Department of Computer Science (Room No. 303), Arts Faculty Extension Building, University of Delhi, Delhi-110007 alongwith a crossed bank draft for Rs. 7/- payable at Delhi and made out in favour of the Registrar, University of Delhi. A request by mail should accompany a self-addressed and postage stamped (Rs. 2/20 p.) 10" × 7" envelope.

Last date for receipt of completed applications is **Friday, February 03, 1989.**

Prof. K.D. Sharma
HEAD

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi-110002. Grams : ASINDU. Phones : 3315105, 3313390, 3312305, 3310059 and 3312429 Telex 31 66180 AIU IN
Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E/2, Jhandewalan Extension, New Delhi-110055. Tel. 529157